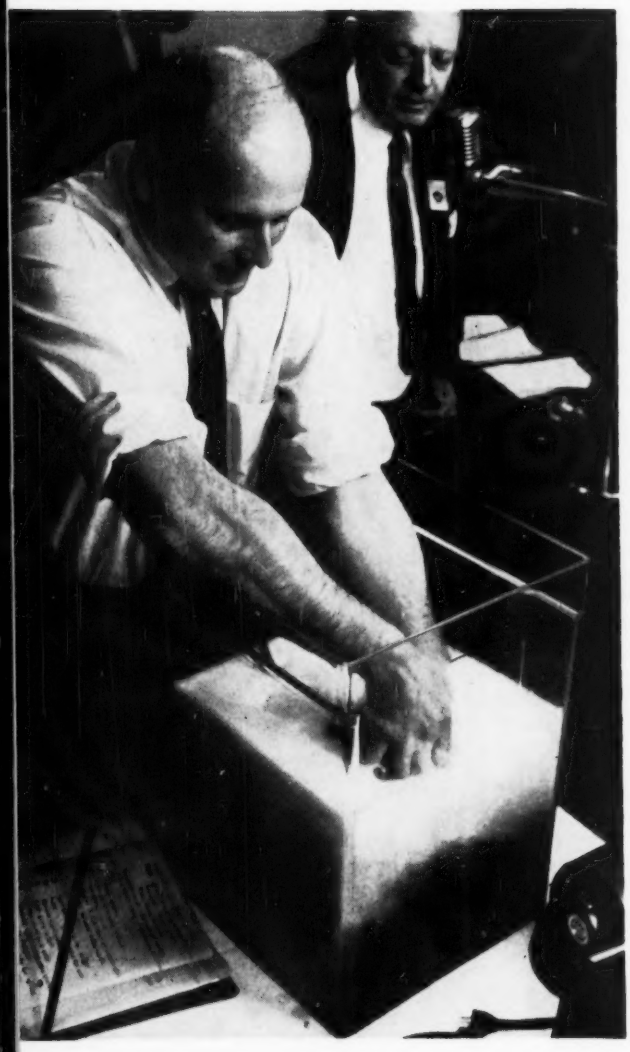
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Chemical Week



Polyurethane sales will surge to 100 million lbs. by '60. But sales battle looms . p. 21

Motor shrugs off water. Key: new inhibitor now bidding for maintenance jobs . p. 43

New push in carpet detergents —applicators will prod '59 sales to $20 million . . p. 57

Synthetic lube outlook: jet airliners will hike use to 3 million gal. by '62 . . p. 69

Recentralized management is watchword at diversified S. B. Penick . . . . . p. 91

April 4, 1959

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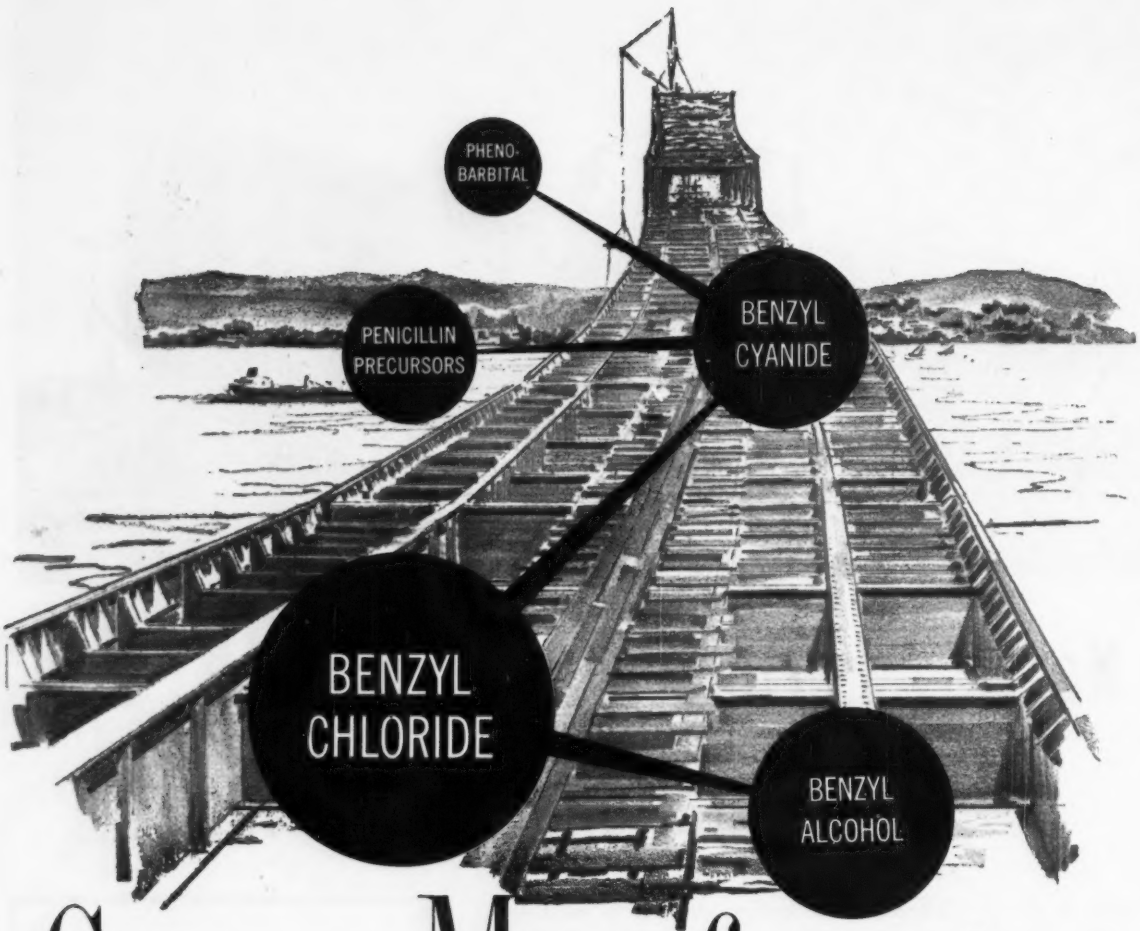
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See Chemical Materials Catalogue listing on page 122

Chemical Week

TOP OF THE WEEK

APRIL 4, 1959

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92 Spevack claims victory in U.S. Supreme Court ruling on his suit to halt AEC's disclosure of his heavy water-deuterium process. But some observers disagree.

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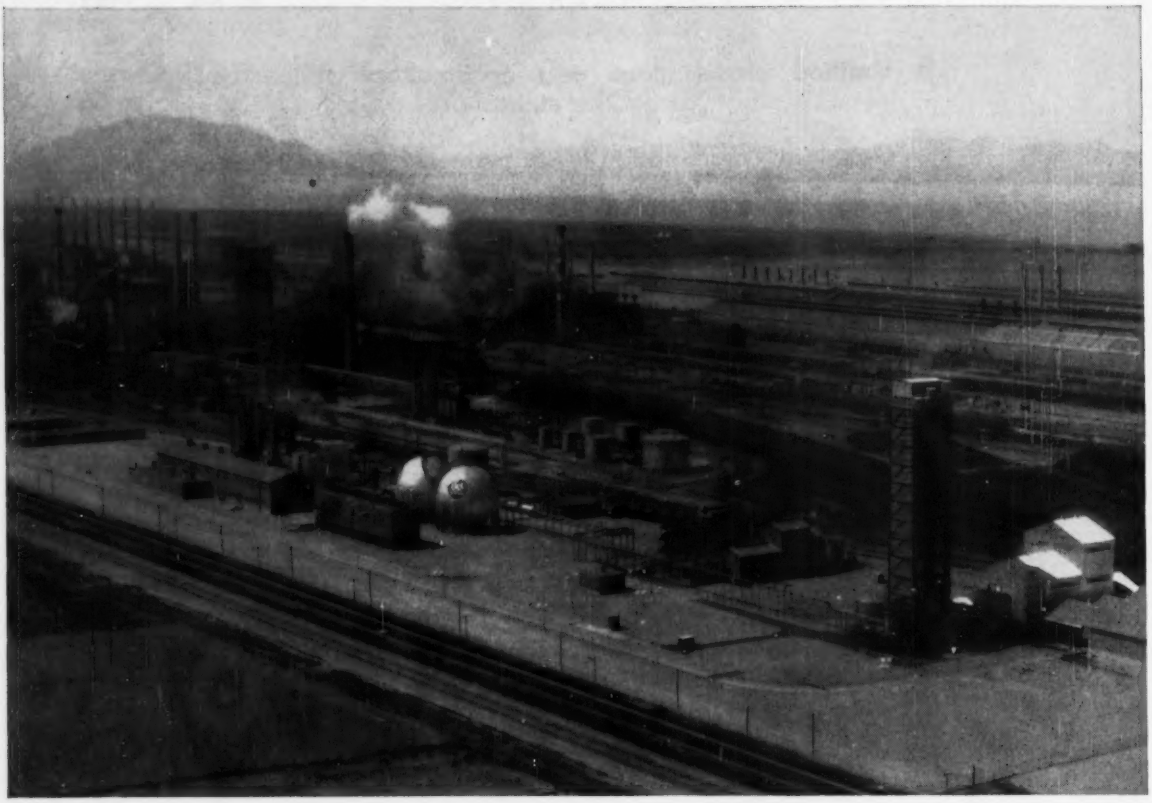
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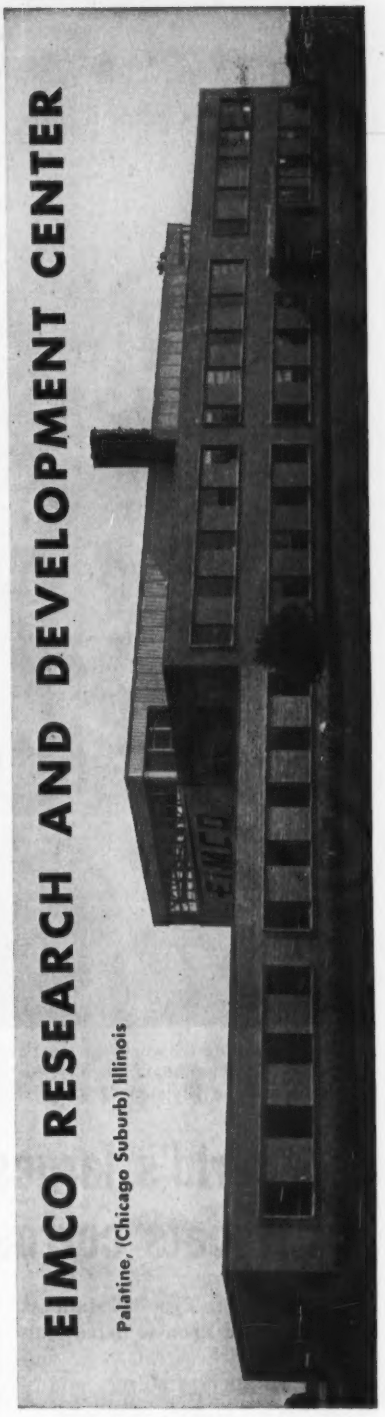
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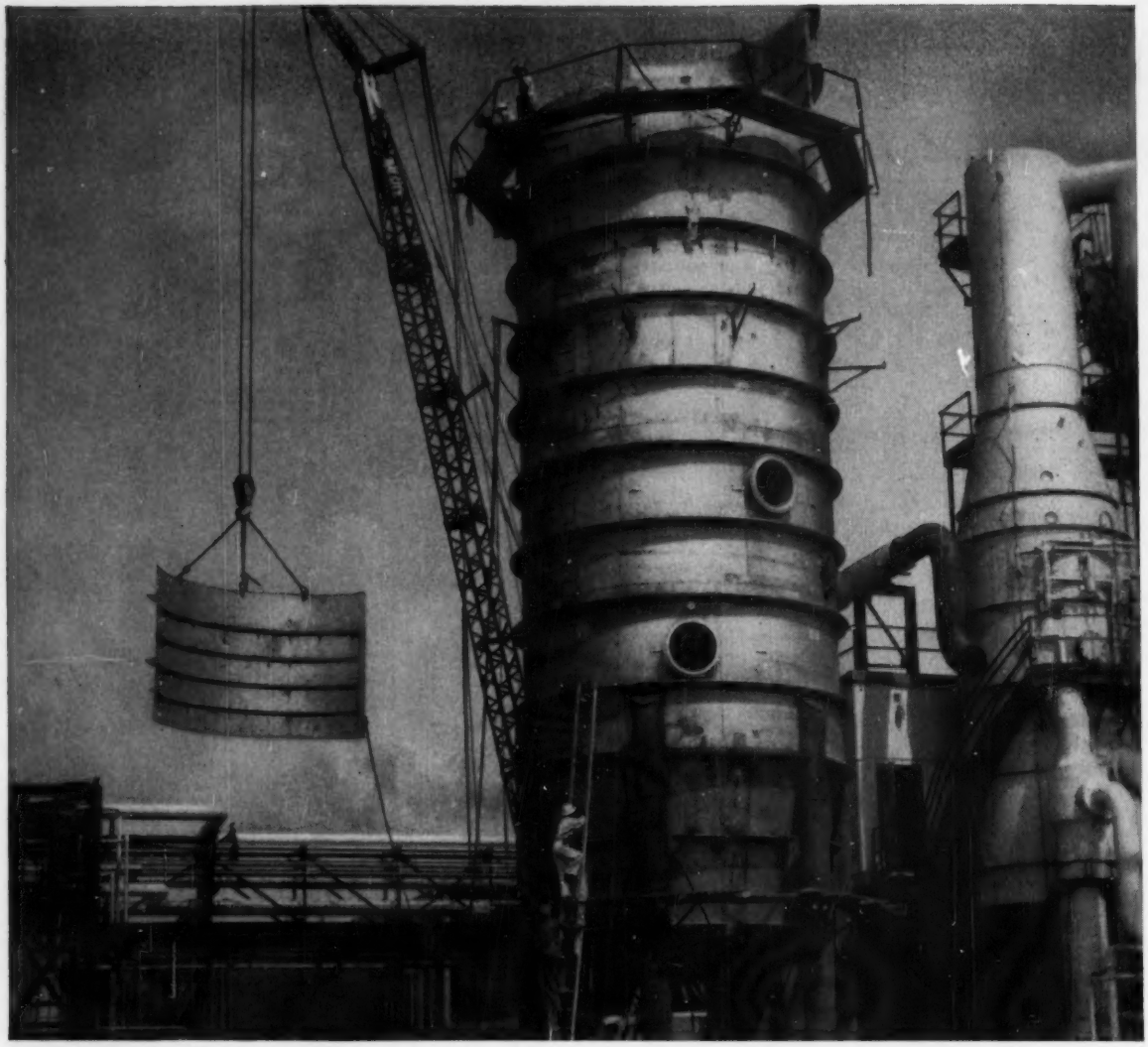
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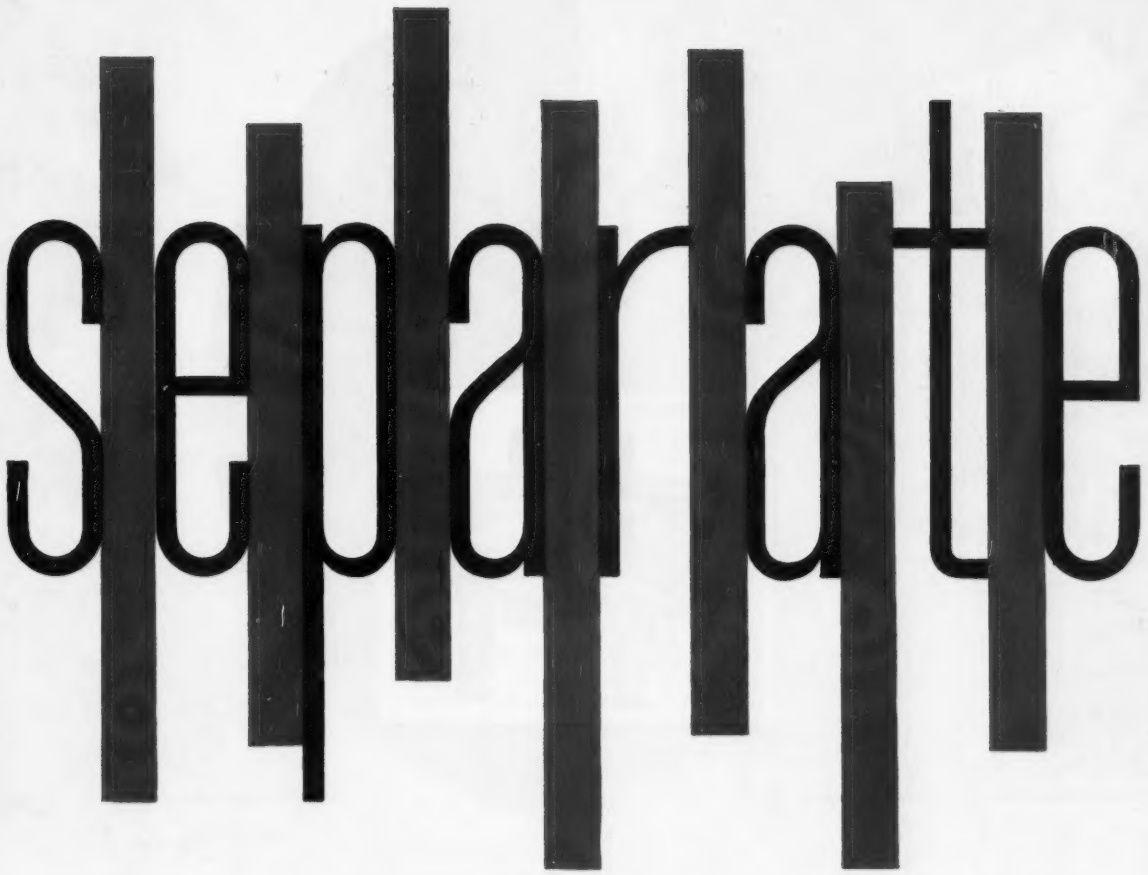
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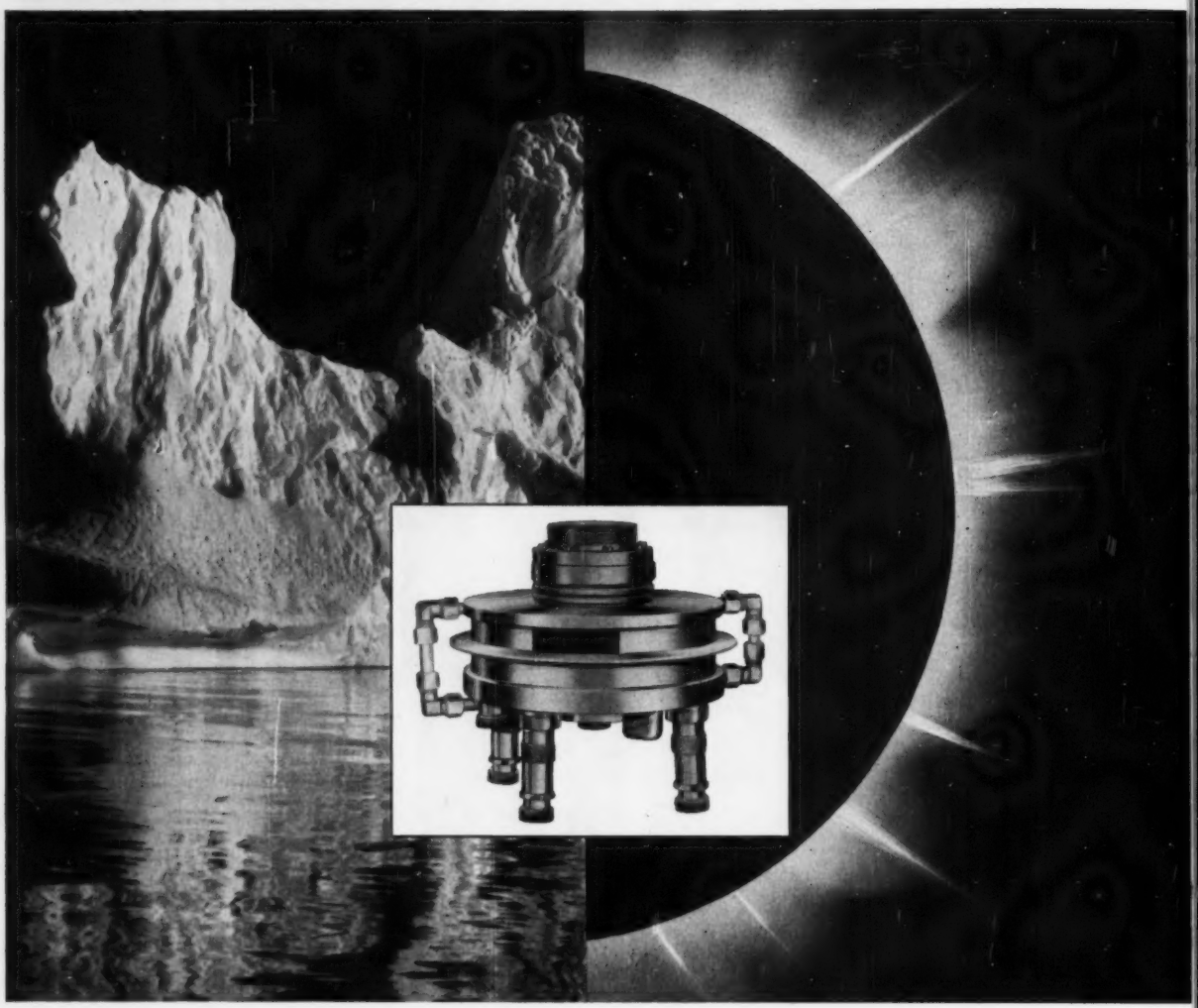
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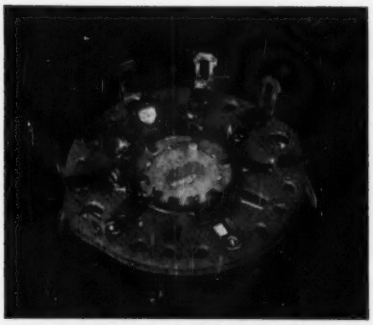
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OPINION

Alert on Textiles

TO THE EDITOR: . . . While I would say that the excellent treatment of the subject of synthetic fibers *(CW, Feb. 7, p. 35)* is only what I would expect to find in CHEMICAL WEEK, I would like to add that this one is quite exceptional.

We are very happy to see this study because it confirms some of the findings in a major study we are doing on the chemical requirements of the textile industry. Necessarily, we will go even deeper into the subject but this study should serve the industry at large very well by alerting it to the great potential for chemicals in the textile industry.

ROBERT FRANK
Vice-President
Calkin & Bayley, Inc.
New York

Slogan for Computer

TO THE EDITOR: I appreciated seeing the excellent article on instrumentation *(CW, Feb. 21, p. 59)*.

There is one important new development in this field that I believe also warrants mention. That is the current pressure to develop a digital-computer-type control for filter-press operations. While this equipment may not be economically justifiable, look at the advantages to the first company that can claim to have a "Filtering Man's Thinker."

PHILIP GISSER
Coordinator of Advertising and Publicity
U.S. Industrial Chemicals Co. Division
New York

Yes, Virginia, there'll always be an adman.—ED

MEETINGS

American Chemical Society, national meeting, Boston, April 5-10.

Chemical Institute of Canada, Analytical Chemistry Division, eighth regional conference, symposium on instrumental methods of analysis, Guildwood Inn, Sarnia, Ont., Canada, April 6-7.

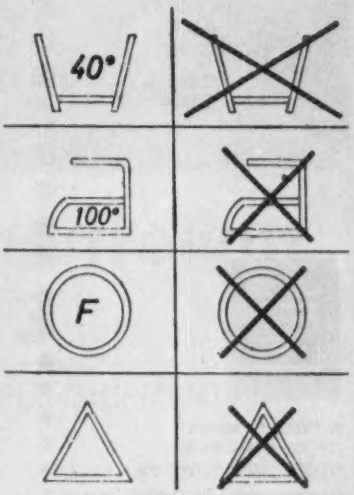
Instrument Society of America, second national symposium on chemical and petroleum instrumentation, St. Louis, Mo., April 6-7.

VIEWPOINT

PITY THE CONSUMER. The government is taking a hand in "helping" him out of his muddle over fiber labels by coining new names.

For example, FTC proposes the division of acrylic fibers into straight acrylics and "modacrylics"—85% or less acrylonitrile. Thus, fibers such as Orlon would be acrylics. Dynel would be a "modacrylic." But how about such acrylic-related fibers as the dinitrile, Darvan, or nitrile alloy, Zefran, unique to themselves?

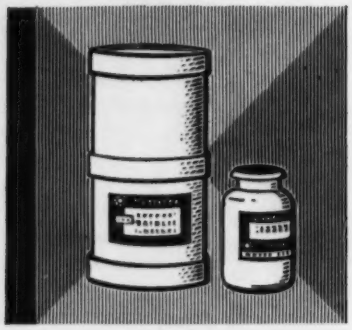
The FTC is doing what it was ordered to do by Congress. But why add to confusion with new names—when it is performance that counts? We like the idea that eight European countries plan to use: sewn-in symbols rather than names. Here are some of them:



The first line concerns washability. If it's washable, show a washtub with a figure (for the U.S., preferably in Fahrenheit) showing maximum water temperature. The fabric's not washable? "X" out the tub. An iron shows the ironing requirements; the letter in the circle, drycleaning solvents; the triangle, if chlorine bleaches can be used.

If the U.S. can't adopt such rules under current law, change the law. It's the performance, not fiber name, the consumer wants to know.

H. E. Johnson
Editor-in-Chief



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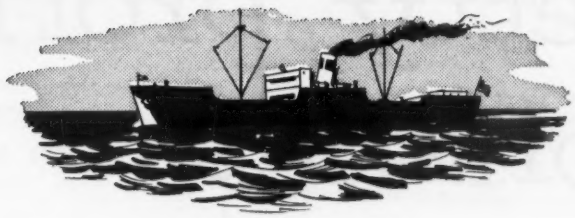
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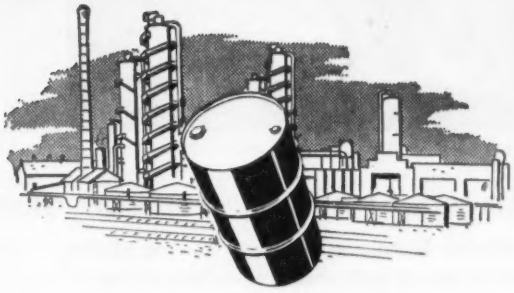
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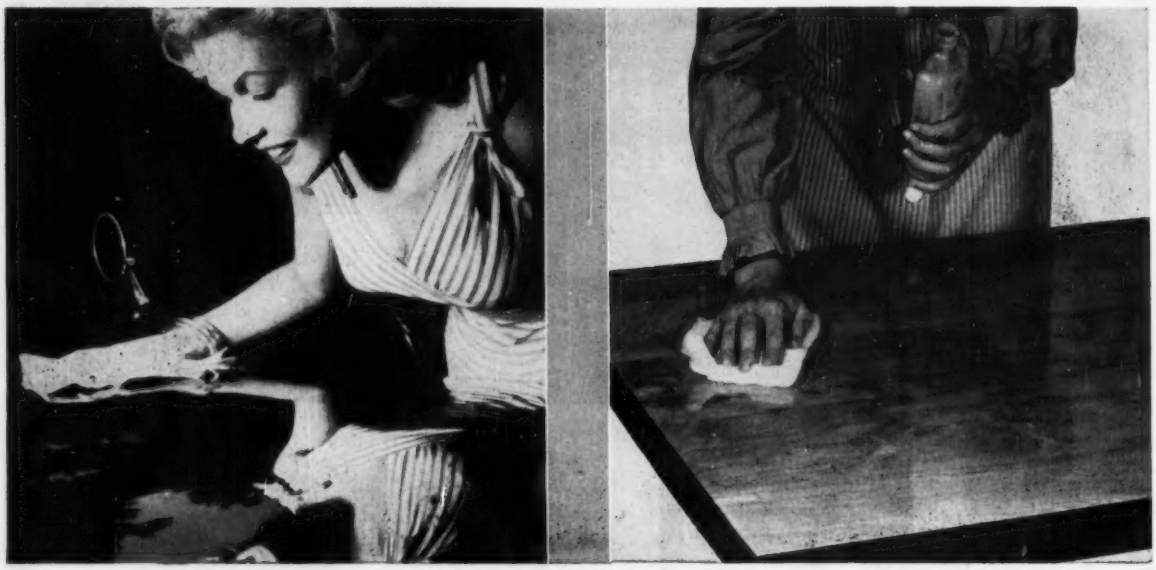
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Business Newsletter

CHEMICAL WEEK
April 4, 1959

Chemical industry growth in '59 and on through '63 will continue at about the 7%/year average of the past decade, says A.D. Little & Co.'s Richard Messing. But, he told New York security analysts, this must come despite two ever-present hurdles:

• Declining prices—despite anything that may be said about "administered pricing" in other industries (*CW, March 28, p. 21*).

• Increasing competition—including that of former customers that have diversified into chemicals.

Messing went on to say that chemical companies will have to continue to "live with" this cost-price squeeze, and suggested that investors might find it "best to stick with larger companies, which can cope with lower prices."

But latest earnings reports show that smaller and medium-size companies are not doing so badly. Victor Chemical sales for January and February were up 8% from last year, and earnings were up by a still greater percentage. Pierce & Stevens Chemical (Buffalo, N.Y.) has boosted its March-quarter dividend 5¢, to 25¢/share, on the basis of "materially higher" sales and earnings in the first three months of this year. And Minerals & Chemicals (Menlo Park, N.J.) managed to increase earnings 21%, to $1.3 million, last year, although sales dropped 3.7%, to $15.4 million.

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There's a new twist to the General Aniline-Interhandel story. Bache and Co., New York investment bankers, is reported negotiating to purchase Interhandel, which claims ownership of the GAF stock now being held by the U.S. government. Several months ago, Bache proposed buying the GAF stock after the rightful owner has been decided by the courts, then selling GAF's assets to W.R. Grace & Co., Paramount Pictures and Daystrom (*CW, Nov. 22, p. 18*). While the dispute between Interhandel and the U.S. government moved toward a possible out-of-court settlement, Zurich traders bid the holding company's stock to a record high last week, spurred by reports that three U.S. groups were vying for Interhandel. GAF's '58 performance should help keep interest warm: sales rose 3%, to $142.8 million; earnings were up 7%, to $5.7 million.

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The biggest chemical distributor in the U.S. is getting bigger. McKesson & Robbins has just completed arrangements to acquire control—by exchange of stock—of Barada & Page (Kansas City, Mo.), a wholesaler with established distribution in several South Central states. According to informed trade sources, this move will increase annual sales of McKesson & Robbins' Chemical Dept. by at least $10 million, put the department in the $50-60-million bracket. In a similar move last summer, McKesson acquired Merchants Chemical (*CW, Aug. 30, '58, p. 46*).

Look for more U.S. chemical expansion south of the border. Du Pont, whose foreign investment policy has been to hold controlling interest, may be set to make a change. It has "indicated its willingness" to consider building a tetraethyl lead plant with the government of Mexico, and be minority partner in the venture. Talks are still in a preliminary stage. Ethyl Corp., which also has been approached by Mexico, says only that it has been studying the possibility of a TEL plant in Mexico "for a number of years."

Meanwhile, foreign money keeps pouring into Mexico to float the ambitious petroleum and petrochemical plants being pushed by Petroleos Mexicanos, the national petroleum agency. The latest loan—$12 million from four U.S. banks—rings up the loan total in the past two months to $72 million. With payments to come out of product sales, Pemex feels that its credit is virtually unlimited, that its foreign financing may hit $200 million before long.

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And Merck & Co. plans to invest up to $7 million in Argentina, including $1 million for expansion of its present plant in Buenos Aires, and $5-6 million for a new plant there. New products will include Diclotride, a heart disease drug.

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Other firms also find the Latin American market lucrative, despite unstable currency conditions.

For American Home Products, '58 net income from Latin American operations rose 1.4%—to $2.5 million—in terms of local currencies. However, exchange adjustments reduced this by $1.7 million. This was a factor in the drop in total overseas net income from $6.3 million in '57 to '58's $4.6 million. The company's foreign sales still account for about 18% of its total sales, which rose 8% last year to $402.1 million. Total profits were also up—almost 10%—to $42.4 million.

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Sterling Drug's South American operations netted more in '58 than they did in '57. Net income from its South American subsidiaries and related earnings in the U.S. rose 16%, to $3.5 million, out of Sterling's total net profit of $19.1 million. But because of "persisting instability of exchange and drastic currency devaluations," Sterling has removed South American accounts from its consolidated statements. Adjusted total profits are up 7.3%, to $19.1 million; sales up almost 7% to $197.8 million. Including unconsolidated operations, sales hit $215.8 million.

Sterling, incidentally, has broken down its sales pattern for the first time. Proprietary products accounted for $96.8 million; pharmaceutical specialties, $71 million; other consumer products, $23.3 million; industrial products, $24.7 million.

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Parke, Davis, meanwhile, is expanding in the East. It's building a $2.2 million sales office and manufacturing plant in Bombay, India. The seven-building facility is expected to be completed by May, '60.



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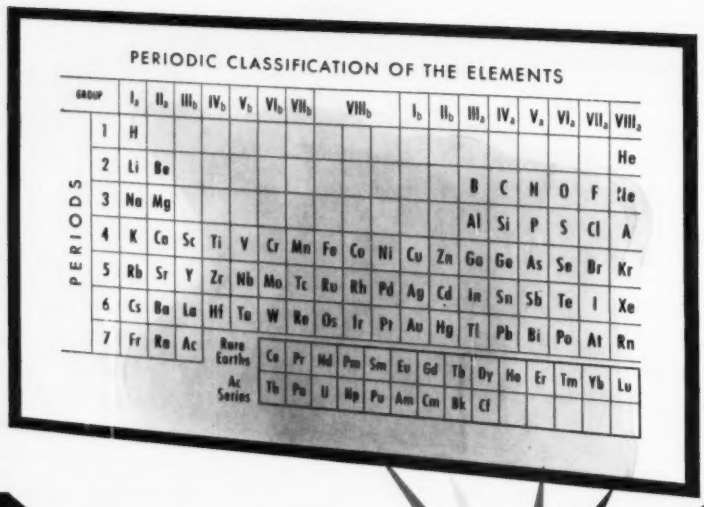
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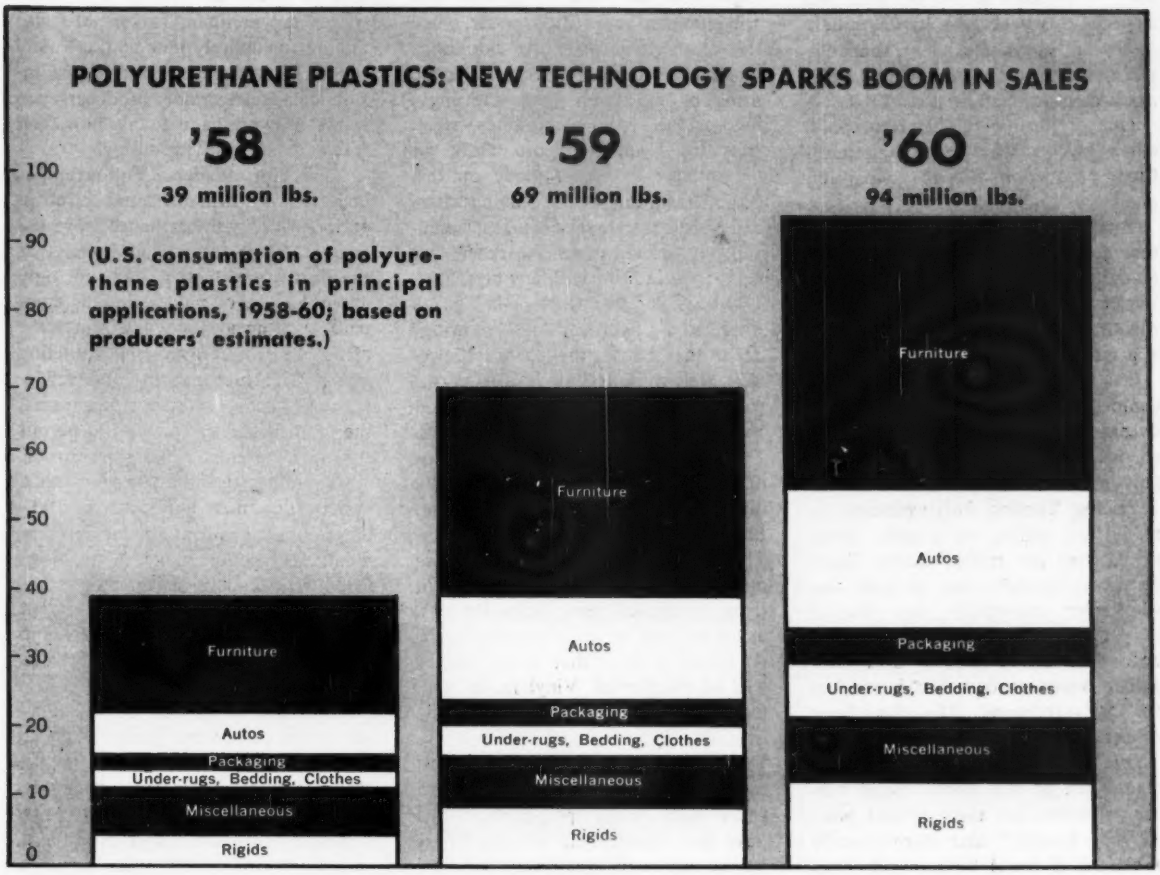
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Polyurethane Makers Aim High

Producers of polyurethane foams this week are laying heavy bets — in the form of funds for plant expansions and research programs — that sales of these products (chart, above) will take big steps upward.

Despite present overcapacity, at least two of the leaders in this field are launching big expansion programs this year; and others point out that their plants are set up for rapid, though yet-unscheduled, capacity boosts. Moreover, all are pouring big money into polyurethane research, and are counting on important breakthroughs to materialize later this year.

Upshot: growing potential in a spate of new applications; plus an all-out battle for some major markets now dominated by foam rubber.

Prospects and Profits: But, although polyurethane potential is great, profits — so far — are small. Producers are playing it "on the come," setting low prices and accepting tight profit margins to get a toehold in what they believe will develop into a big, profitable market.

Trend Is Up: Market projections offer justification for this course. Polyurethane demand has grown from 1 million lbs. in '55 to a whopping 39 million lbs. last year. For '59, an industry consensus puts expected consumption at 69 million lbs.; for '60, 94 million lbs.

Sales in December hit a '58 peak of 5 million lbs. — and since then have been irregularly higher. First-quarter sales this year, compared with those of '58, are even more impressive. Mobay's marketing director, J. D. Mahoney, reports polyurethane sales for the quarter are running 94% ahead of those a year ago. Du Pont sales manager, William Ayscue, says isocyanate sales have "more than doubled" this quarter over the same period last year. Others have chalked up similar gains.

More Capacity: And though most producers are still operating at well under capacity they're not alarmed. Some, in fact, are blueprinting substantial expansions.

Mobay, for example will boost its plant capacity from 12 million lbs./-

year to 18 million lbs. by Jan. '60. Allied, though not planning any expansion this year, strongly hints that it may add more isocyanate capacity later — perhaps in '60. Du Pont will sit tight this year with its 25 million lbs./year isocyanate plant, but emphasizes that it can expand rapidly as markets pick up.

One of the big producers of polyether glycols used in polyurethane foam production also has expansion plans.

Brisk Competition: Smaller firms, too, aren't overlooking urethane potential. Perlon Corp. (Lyons, Ill.), which has just added 650,000 lbs./-month of polyurethane resin capacity, is a good example.

This capacity buildup spells hot competition — not only among producers of polyurethanes and their chemical suppliers but also between polyurethanes and foam rubber.

Pricing Tactics: Polyurethanes already are selling at slightly lower prices than are rubber foams. Exact costs vary widely, but at least one wholesaler reportedly has bought polyurethane for as low as 20¢/-board-foot. More realistic distributor prices hover around 30¢/board-foot for polyurethanes, 32¢ for foam rubber.

One big question is whether urethanes can go still lower. Foam rubber producers say their present price is "rock bottom," that there's hardly a chance it could be reduced. Urethane makers are also dubious of a substantial price drop, but several hoped-for research successes could cut production costs.

'One Shot' Process: Most promising of these is the "one-shot" foam process — which eliminates a prepolymer mixing step. So far, the process has been worked out only on certain types of foams. Other types, ranging from rigids to very-low-density materials, may also be produced by this method — at significant savings.

But estimates vary as to the cost of the prepolymer mix step. Some producers says 5¢/lb.; others, less than 1¢/lb. Cost, in any case, depends on type of equipment used—so much so, that actual savings for some foammakers may not justify the switchover.

One polyurethane sales manager tells *CW* that the average savings definitely won't make a price reduction possible. Others, however, are cautiously optimistic.

Saving on Molding: And new molding techniques could mean savings. Case in point: a process that will eliminate some of the waste, when the foams spill over the side of a mold. Key: machinery that will scoop some of the foam from the mold before the former becomes rigid, treat the foam for reuse. Only the barest start has been made on this project and the quick-foaming character of polyurethanes is a real handicap. But, declares one researcher, "we can't afford to overlook any bets."

Other improvements — e.g., a fluorinated hydrocarbon "blowing" agent that boosts the foam's molecular weight, hikes its insulation capacity — are closer to reality and can be expected to help sales this year.

There's also a possibility that foams made from new dimer acids, recently introduced by Emery Industries and Pittsburgh Plate Glass, may find favor. They're of a soft texture and have other specific properties that may fit them to special uses. Atlas Powder, using sorbitol as an intermediate, has developed a foam that is angling for part of the market. Vinyl foams, too, may offer cost advantages for some uses.

Polyethers Gaining: But the biggest research payoff to date took place two years ago, when polyether foams were first produced in volume. These foams are now displacing polyester products in both soft and rigid applications. Lower cost is one advantage. And resiliency, important in seating-cushions, is another. Polyether-derived foams are said to be better insulators and more wear-resistant—two other strong selling points.

Growth Cushion: Chief market target for this year is the furniture industry — which uses a minimum of 200 million lbs./year of cushioning material. Polyurethane makers are hoping to supply 30 million lbs. of this.

Next in polyurethane producers' sights is the auto industry. Last month, Fisher Body Co. (Detroit) made a "significant" switch to polyurethane cushioning in the new model General Motors cars. Total use in autos last year hit 6.5 million lbs.; this year, use might go up as high as 18 million lbs.

Other applications — e.g., packaging, bedding, rug underlay, etc.—are also expected to grow fast. Total sales for these uses was about 10 million lbs. in '58. This year the figure will be about 20 million lbs.

But polyurethane makers are also aiming for entirely new markets. And the biggest of these may well be insulation. Refrigerator producers are testing polyurethane foams now, and results have been promising.

Right for Reefers: For example, one trucking firm insulated a refrigerator trailer with urethane, drove the trailer 250,000 miles and found that the insulation had picked up only about 50 lbs. of moisture. This compares with an average weight increase of 500 lbs. for conventional insulating materials. Moreover, for most refrigerators, say polyurethane producers, the foam is efficient enough to permit up to 25% more storage space inside.

Researchers are hard at work on a variety of other applications: 100,-000-mile auto tires are under development, also house paints that last up to 20 years, adhesives that won't become brittle or lose toughness, leather that will drape as easily as cotton, and a host of others. Allied says it may well spend more research dollars on polyurethane chemicals in '59 than on any other product group.

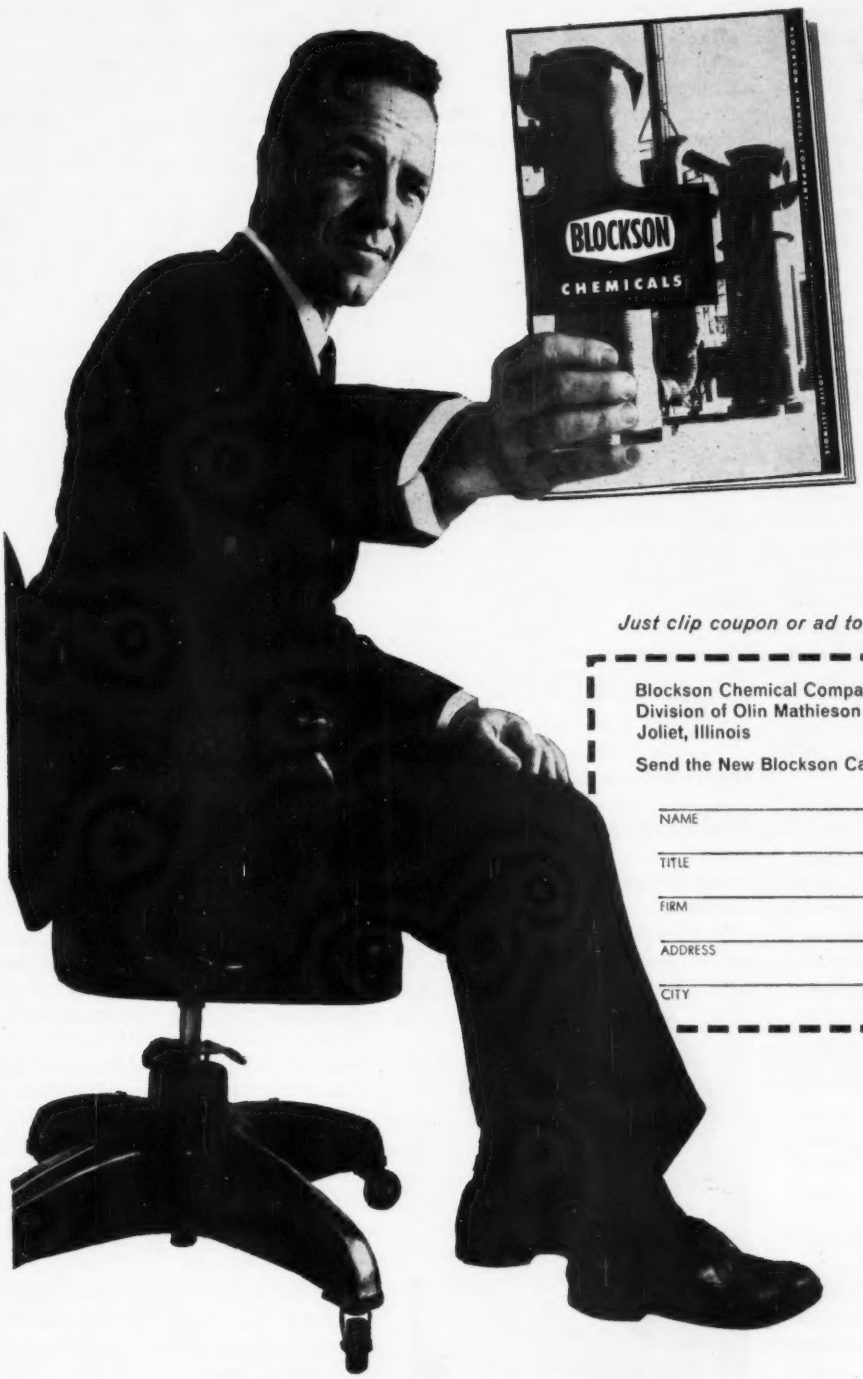
Rivals Not Reclining: Of course, some of these markets, particularly cushioning and bedding, have been dominated by foam rubber. And foam rubber makers aren't going to give them up without a battle. They're greatly stepping up research to develop tougher latex foam, working out new molding methods.

Moreover, foam rubber producers contend their product is still "best for sitting" because of its "snap-back." Polyurethanes, they say, form a "permanent set"; i.e., with prolonged use the cushioning sags, causing upholstery to wrinkle. Polyurethane people deny this, say the problem has been solved.

But competition for some time to come can be expected to increase. No one, not even the most enthusiastic polyurethane maker, expects polyurethanes to completely take over the well-established foam rubber markets. But polyurethanes can, and do, have many desirable properties — which prompt producers to look forward to record sales this year and still greater volume in '60.

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Teamsters Turn to the CPI

Jimmy Hoffa and his Teamsters union are causing what may turn out to be the biggest stir in CPI labor relations in 20 years.

Right now, Hoffa, whose dealings in cash and in violence are still being explored by the Senate's McClellan committee, is concentrating on three major oil refineries, two of Esso, one of Socony. His first target is the Esso Standard Oil works at Baton Rouge, La.—at which the hourly paid employees are represented by independent, one-plant unions. But in the organizing war that Hoffa has declared against what he calls "the fat and lazy" AFL-CIO, there are indications that the Teamsters' forceful, 45-year-old president has designs on any and all employees in the CPI.

Already, Hoffa claims that his union represents about 200,000 truckers, warehousemen and tank-farm and pipeline workers engaged in transporting and storing fuels and chemicals. And last week, he told *CW* that he favors company-wide bargaining in the oil and chemical industries. More specifically, he went on, he advocates common expiration dates for contracts in these industries.

Possibility of Bluffing: One view of recent dickering between the Teamsters and the independent refinery unions is that the latter are simply trying to bluff Esso management in current contract negotiations. The independents' strategy, according to this view, is to say, in effect, to Esso: "Give us good terms, or we'll bring in the Teamsters."

Questioned about this, Mervin Folley—president of the local union at Esso's big refinery in Baton Rouge—told *CW*: "The day of the independent union is all but gone. Since Jimmy Hoffa came to Baton Rouge March 12 at our invitation, the company has offered us the moon. They might deliver part of what they've offered, but if the threat of Teamster organization faded, they would undoubtedly not only withdraw these offers but also take other benefits away."

Boasted Harold Gibbons, a Hoffa lieutenant: "Since the Teamsters have entered the Esso picture, the company has leaned over backward to bring contracts now in negotiation to a quick settlement. The workers in Esso know that the Teamster interest in their problems is why management is so anxious to settle."

Interunion Conflict: The situation started shaping up early this year when officers of the independent union at Esso's refinery in Bayway, N.J., invited Hoffa to address the membership. The broader outlines of the conflict came into focus during the AFL-CIO executive board's meeting in Puerto Rico, at which the board announced plans to step up organizing in Puerto Rico and in the Southern states. Hoffa promptly accepted the challenge, said he would spend "as many millions as it takes" to organize in those areas and would "turn Dixie upside down, if necessary."

At Baton Rouge—where contract renewal talks have bogged down over management's proposal to substitute "a general refinery mechanic" classification for certain craft ratings—about 1,100 of the more than 4,000 Esso workers came to hear Hoffa. "Join us, and more than a million teamsters will help you fight your battles with Esso," he promised.

Ten days later in Washington, 58 officers and members of 10 Esso independent unions from five states formed an Esso Labor Council and wired to Baton Rouge a unanimous recommendation to affiliate with the Teamsters.

Last week, the Baton Rouge local union's plant council voted, 31 to 23, to recommend affiliating with the Teamsters; that recommendation will be submitted to the union's full membership "at a convenient date." But, there's opposition to the move.



WIDE WORLD

Teamsters' Hoffa: At Esso refineries, a bid for entry into the CPI.

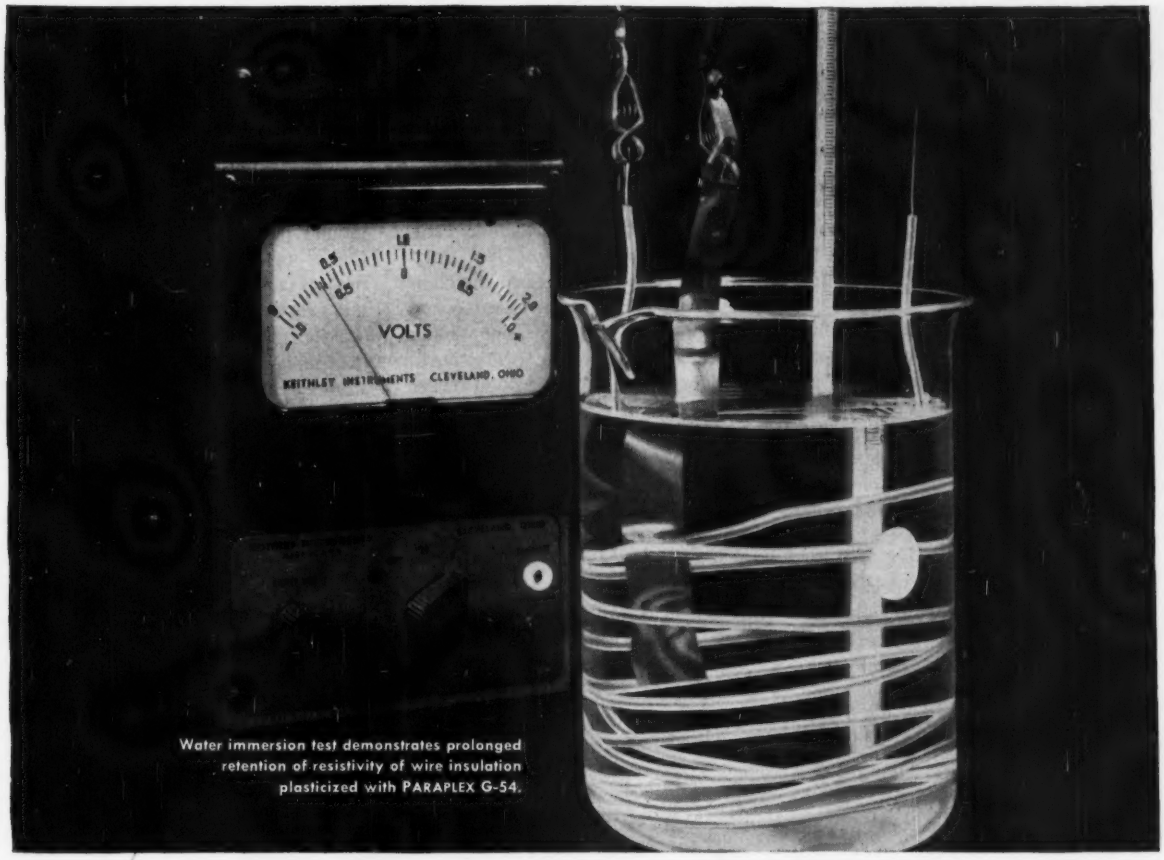
Esso management, expressing concern that employees "may be caught in an outside struggle for union power," told *CW*: "There is nothing to gain from an affiliation with Hoffa or any international union. We cannot believe employees will choose this route. In fact, at the Everett, Mass., refinery, union members last week voted unanimously to retain their independent status."

And Oil, Chemical & Atomic Workers (AFL-CIO) will be fighting "to protect its jurisdiction." OCAW President O. A. (Jack) Knight came to Baton Rouge last week, told an audience of several hundred people that OCAW is the only union that can properly represent oil industry workers.

NLRB Election Likely: As of last week, it appeared quite likely that the National Labor Relations Board sooner or later would hold a representation election at the Baton Rouge refinery. The Teamsters and the Oil Workers have circulated preference cards to all employees, and the Teamsters were confident they would get the requisite 30% return by this week. They said if management does not voluntarily recognize the Teamsters as bargaining agent, they'll ask NLRB to order an election.

If Hoffa wins at Baton Rouge, his next CPI target probably would be the Esso refinery at Bayway, N.J. Employees there are now represented by the Esso Industrial Union. He is also launching an organizing drive at Socony Mobil's refinery at Paulsboro, N.J. The Teamsters already represent a few scattered bargaining units within the Esso system, but their biggest foothold in the petroleum industry up to now is in Tidewater's refinery and tank-farm facilities along the West Coast.

At Detroit, a Teamster spokesman told *CW* his union has no definite plans to organize in the oil and chemical unions, aside from the Esso and Socony employees. But local unions throughout the CPI—particularly the nonaffiliated unions—are watching these maneuvers to see if it pays to join (or threaten to join) Hoffa's big, muscular and well-heeled crew.



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Wax Firm Gets New Footing

Warwick Wax Co., a subsidiary of Sun Chemical Corp., this week is becoming a division of Western Petrochemical Corp. Western is a new concern whose primary purpose is to provide a good corporate home for Warwick Wax.

Warwick, a subsidiary of Sun for the past 15 years, has prospered and grown; '58 sales are described as "several million dollars." But Sun management could not spare the capital required for a five-year expansion program advocated for Warwick by Warwick's founder and general manager, Maurycy Bloch.

Gaining clearance from Sun President Norman Alexander, Bloch lined up new backers who put up enough cash to acquire Warwick's assets and set up Western Petrochemical with funds for expansion, modernization, working capital and reserve. The goal: to double sales volume within five years.

New Products Ahead: It's expected that Western Petrochemicals will eventually carry more than waxes in its product line. Bloch — who will serve as president of Western and also as chief executive officer of its Warwick division — says details will have to wait until after patent applications are filed; but that the first prospective additions to the product lines are polyhydrocarbons to be used as fortifiers and extenders of various synthetic resins.

Main points of the "several million-dollar" growth program:

- Expansion and modernization of the refinery and laboratory at Chanute, Kan., including immediate installation of a deasphalting unit.
- Diversification of production at Chanute by releasing "an entire family of new polyhydrocarbons."
- Acquisition or construction — or both — of refinery facilities to produce by '61 additional petrowaxes for the packaging industry.
- Increasing Warwick's international business by helping the firm's foreign distributors to become manufacturers of specialty waxes.
- Expansion of technical services, including eventual establishment of field service laboratories in Chicago and Los Angeles.

'Balanced Lineup' on Board: Bloch — who urges putting more scientists in chemical companies' executive offices (*CW, Feb. 21, p. 22*)—says his board of directors will include Prof. Herman Mark of Brooklyn Polytechnic Institute; John Fish, the company's vice-president for research and development; probably one other science and engineering professional; and Bloch, a fourth-generation dealer in waxes (*CW Report, July 19, '58, p. 54*).

Also to be invited to serve on the board: one key executive from each of the two companies for which Warwick is exclusive distributor; one executive with "life-long" experience in international chemical trade; and a senior executive who has built one of the leading chemical distribution companies in the U.S.

"Ours will be a 'working' board," Bloch says, "with a balance of knowledge and talents in chemical science, finance, business administration, law, sales and production."

By May 1, Bloch says, Western and Warwick will have a new headquarters and laboratory somewhere in midtown New York. Meanwhile, he and his staff are continuing to use their share of Sun Chemical's New York offices.

Antitrust Interlude

The Federal Trade Commission rested its antitrust case against five tetracycline producers and distributors last week. Hearing Examiner Robert Piper adjourned the sessions until Sept. 9, when the respondents are slated to begin their defense.

Meanwhile, maneuvering is likely. Respondents have until May 4 to file motions. FTC must answer them by May 25; the respondents, in turn, must reply by June 15.

A motion to dismiss would probably fail, Piper noted. But he conceded that one might be useful in pressing FTC to define its case more clearly.

During the last two days of the March hearings, arguments focused on whether cost information submitted by the companies was accurate and adequate. Earlier, the companies had won the right to have their tetracycline costs submitted to independent accountants for calculation, instead of turning over all pertinent documents to the FTC lawyers.

When the cost studies were submitted to FTC a week ago, the prosecutors objected — primarily on the ground that they had had no opportunity to examine the underlying records to see if the computations and allocations were correct.

After a long argument, in which the public accountants who did the work were questioned, Piper ruled that the cost studies were an adequate substitute for the data originally sought in FTC's subpena.

When the hearings resume in September, Pfizer will be first to present its defense; three weeks will be allowed. American Cyanamid, Bristol Laboratories, Bristol-Myers, Upjohn and Olin Mathieson will follow, in order, with two weeks each.

Course for Analysts

Some 300 New York security analysts this week began probing into the workings of the U.S. chemical industry. The occasion: the first of five weekly lectures conducted by Allied Chemical Corp. to familiarize the financial community with the "nuts and bolts" of the industry.

The lectures — originated at the invitation of the New York Society of Security Analysts' education committee — will present a series of key Allied executives speaking on such topics as industry history and present characteristics, research, commercial chemical development, chemical manufacturing, transportation, marketing, financing and what's ahead.

Analysts Enthusiastic: Nicholas Crane of Dean Witter & Co. (New York) and '58 president of NYSSA summed up analysts' feelings on such courses: he told *CW* that they were "one of the most significant things for analysts." He added, "It gives them a chance to get inside the industry, to ask questions."

Similar courses have been held by the petroleum and electronics industries and in several cities, including Boston. Analysts' interest and attendance would indicate that they consider the courses worthwhile. For the chemical industry this means good will on the part of those to whom the industry must often go for new capital on favorable terms.

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COMPANIES

Reichhold Chemicals' stockholders have approved the directors' plan to increase authorized common stock from 3 million to 10 million shares. Immediately after the authorization, Reichhold reported a two-for-one stock distribution, bringing total shares outstanding to 3 million.

Reichhold has purchased Specialty Chemicals, Inc. (Austin, Tex.), and will operate it as the Specialty Chemicals Division. It produces accelerators for polyester resin formulations.

•

Smith, Kline & French Laboratories directors have recommended a three-for-one common-stock split. Stockholders will vote on the proposal May 21.

•

Dow Chemical Co. is stepping up its product development program to shorten the time lag between laboratory and market. Spearheading the program will be Technical Service and Development, which has just become part of the Chemicals Dept.

•

American Agricultural Chemical Co. is planning to raise some $7 million through a common-stock offering. The firm also plans a three-for-one stock split.

•

Reynolds Metals Co. has upgraded its international organization "in recognition of the growing importance of the firm's stake in overseas markets." Its subsidiary, Reynolds International, Inc., has been set up as a separate unit with independent management, to manage sales and production overseas and in Canada. Headquarters site has not yet been selected.

EXPANSION

Urea: Consolidated Mining and Smelting Co. (Trail, B. C.) will put up a $5-million, 36,000-tons/year urea plant in Calgary. Output—in the form of high-purity prilled or pelleted products or special solutions—will be marketed primarily in northwestern U.S., and also in midwestern U.S. and in western Canada. Plant completion is set for mid-'60. It will be Canada's second urea unit, and the first in western Canada.

•

Alcohols: Gulf Oil Corp. has completed engineering work for the first major petrochemical plant at its Philadelphia refinery. Main products will be iso-octyl and decyl alcohols, but it will also be able to turn out a broad range of alcohols and oxo products. The plant will quadruple Gulf's oxo capacity. Construction will get under way this summer, with startup slated for the summer of '60. Gulf is planning to put up other petrochemical units in Philadelphia.

•

Polyethylene Film: Du Pont is considering setting up polyethylene film operations in one of its three former rayon plants at Richmond, Va. The 350,000-sq.ft. plant is now idle. One of the other plants still makes high-tenacity rayon, and the third has been converted to nylon production.

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Sulfuric Acid: Dixon Chemical Industries' $5-million sulfuric acid recovery plant, abuilding in Paulsboro, N.J., will have a capacity of 300,000 tons/year, not 30,000 tons, as previously reported (*CW, March 21, p. 25*). It's due onstream this fall.

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Fertilizer: American Agricultural Chemical Co. has purchased a 64-acre site at Sleepy Eye, Minn., will build a fertilizer plant there "at a future date."

•

Sulfur: Pan American Sulphur and Texas Gulf Sulphur are both building storage and handling facilities near Tampa, Fla. Pan American's will have a capacity of 65,000 tons for dry bulk and liquid storage, will be able to handle up to 300,000 tons/year. Texas Gulf's plant will have an initial capacity of 50,000 tons of dry sulfur, 12,000 tons of liquid.

•

Mineral Acids, Phosphates: Electric Reduction Co. of Canada, a member of England's Albright & Wilson group, will put up plants at Port Maitland, Ont., to produce sulfuric and phosphoric acids, sodium phosphates, other agricultural and industrial chemicals. Startup is expected early next year.

FOREIGN

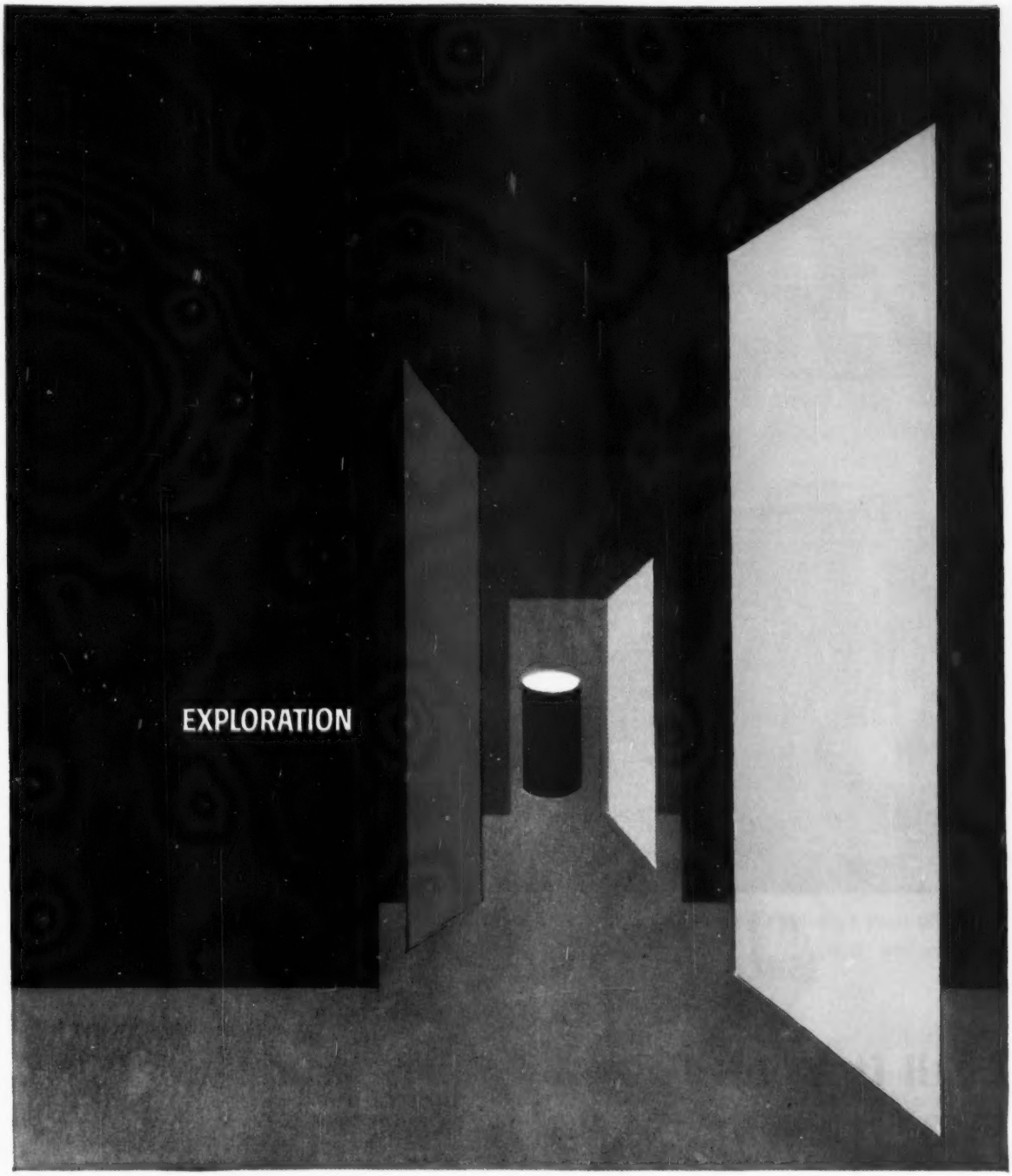
Sulfuric Acid/Netherlands: In one of the rare instances of a U.S. company investing in European basic chemical production, Cyprus Mines Corp. (Los Angeles) is forming a joint venture with a Dutch company to produce sulfuric acid. The plant will reportedly be "one of the largest in the world." It will adjoin the Parnis (near Rotterdam) plants of Cyprus Mines' partner, Albatros Superfosfaatfabrieken (Ultrecht) and will be operated by Albatros as a jointly owned subsidiary, called Albatros Zwavelzuur en Chemische Fabrieken. Raw material—pyrites—will be shipped from the U.S. company's pyrite and copper mines on Cyprus.

•

Urea/West Germany: A 25,000-tons/year urea plant, due onstream early next year, is going up in Wesseling, near Cologne. The owner: Union Rheinische Braunkohlen Kraftstoff AG. The company will supply its own ammonia and carbon dioxide.

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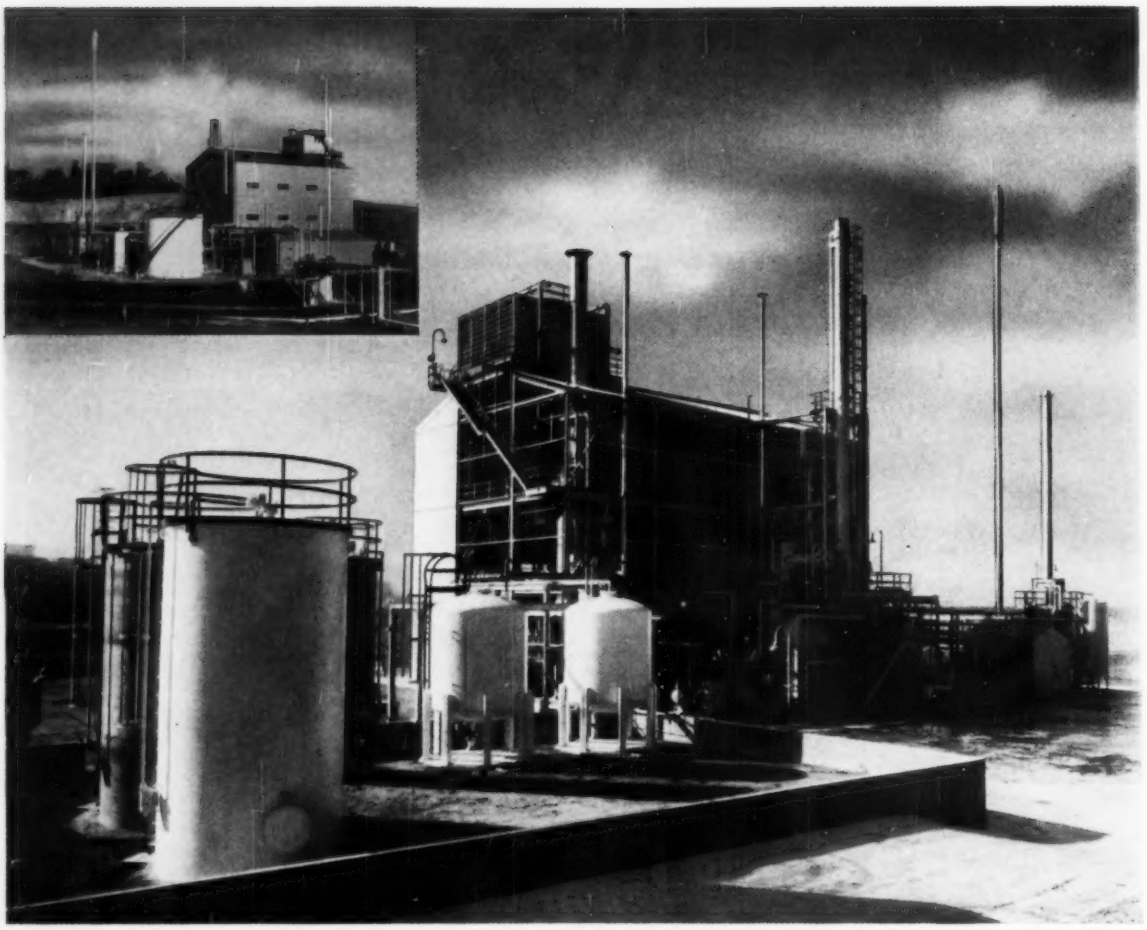
Sales/England: Mounting export problems—currency shortages, licensing restrictions, and increasing domestic production abroad—have bitten into sales of Monsanto's British subsidiary, Monsanto Ltd. Its exports fell almost $3 million last year, to $15 million. Exports accounted for 35% of the company's '58 sales ($43.2 million), compared with 41% of '57 sales.



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Washington
Newsletter

CHEMICAL WEEK
April 4, 1959

Most of the business issues in Congress are still unsettled as legislators test voter sentiment during the Easter recess.

Spending is still the biggest single issue—with the Democrats pushing to get Eisenhower to spend more on most programs. All told, Congress may approve bills that would run Eisenhower's $77-billion budget for next year up to $79 billion or so.

The big question still unanswered: Will the President veto programs that boost his spending totals? The first test—if the Democrats can manage it—will be on housing, which will be tough for Eisenhower to veto. Next will probably be aid to airports, which also will call for much more spending than Eisenhower wants.

The big test will come on defense appropriations—the Democrats want to spend $500 million to $1 billion more on missiles, space projects, and the like. Eisenhower still maintains his $40.9-billion money request is all he needs.

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Labor reform legislation will be slow in coming. But odds favor passage of a bill by Congress. What's passed, though, will be something labor leaders won't mind much.

Minimum wage revision will probably be held over until '60—chances of raising the floor to $1.25 an hour and broadening coverage might be better then than now.

Some antitrust legislation seems likely, although such things as premerger notification, regulation of bank mergers, and new subpena powers to the Justice Dept. are still up in the air.

Price legislation is being hotly debated, but not much concrete action is likely. "Good faith" meeting of competition—S. 11—might have a chance; "fair trade" doesn't. There won't be any law giving Washington new power over prices generally—such ideas as requiring public hearings before a businessman can raise prices just don't stand a chance as things are now.

TVA will get authority to issue its own bonds to finance needed power plants—but with language that tries to specify its geographic limitations.

Retirement program for self-employed won't become law. The program designed for engineers, consultants, lawyers, doctors, etc., will cost too much for Eisenhower. He'll veto.

Washington Newsletter

(Continued)

Foreign aid is in the usual trouble; maybe more so than usual. Democrats threaten to cut Eisenhower's $3.9-billion package unless he gives some on spending for their domestic programs.

The aid-to depressed-areas program, which has been introduced by the Democrats, stands little chance of passage. Eisenhower would surely veto the bill as it now stands; and proponents don't have the two-thirds majority needed to override a veto. A drastic whittling of the subsidy scheme would be necessary to put the bill in line with Eisenhower's ideas—and in a form that the White House would accept.

Gasoline tax and postal rate increase bills don't stand a chance; Eisenhower wants them both.

•

Federal control over atom fuel fabrication and processing would be untouched by the Administration proposal for a transfer of authority to the states. AEC wants authorization from Congress to turn certain licensing and safety responsibilities over to the states as they develop adequate programs of their own. Under the proposal, however, AEC could not give away control over facilities where hazardous quantities of special nuclear materials are involved.

Continuation of federal jurisdiction would be mandatory not only for any chemical processing plants but also for reactors, ocean burial of radioactive wastes, and import or export of either isotopes or special nuclear materials. Transfer or regularity powers to the states could be revoked at AEC's discretion. The Congressional Joint Committee on Atomic Energy will give the AEC proposal a hard look when it holds hearings on federal-state relations in May.

•

Final negotiations for simultaneous Moscow and New York trade fairs to be staged this summer as part of the U.S.-Russian exchange program are about set. The U.S. exhibit in Moscow's Sokolniki Park will cover 80,000 sq. ft., cost the government $3.6 million, industry donors $2.5 million.

The chemical industry is high on the list of American business groups that have arranged for special exhibits—particularly in the plastic and petrochemical fields, which currently have priority interest in Russia. Processing steps will be demonstrated "live" in several exhibits, much as they are in U.S. trade fairs. Biggest plastic item is the all-plastic pavilion, which will house other exhibits.

The U.S. show is scheduled to open July 4 in Moscow; the Russian exhibit will open June 28 in the New York Coliseum. Each will run for six weeks, include culture and entertainment programs as well as scientific and technical demonstrations. The idea is to put across a sort of panorama of each country's way of life to the other nation's man-in-the-street.

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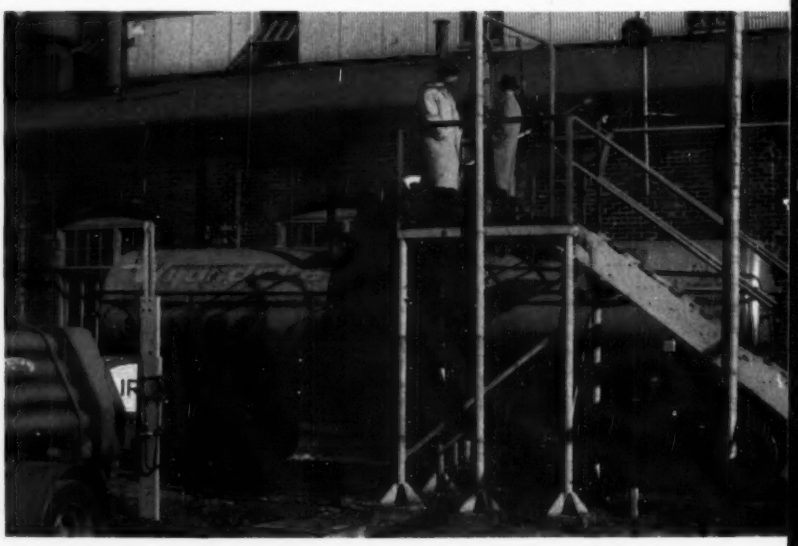


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722

Four Reasons for 'Lost' Prescription Sales

Perhaps as many as 30% of all prescriptions written never jingle the druggist's cash register. That's what Lakeside Laboratories' sales vice-president, Lee Gibson, has been telling pharmacists and the pharmaceutical industry in a recent series of talks. Assuming that if only 10% of prescriptions were unfilled, the total loss (retail) would be $105-117 million/year. If the higher percentage figure cited by Gibson is valid, the loss is a thumping $405-450 million/year.

These calculations are based on the average number of new prescriptions written last year (350 million) and on the average retail price of $2.70 to $3. While approximately 260 million prescription refills are also made, an additional loss resulted when patients failed to get prescriptions filled.

The pharmaceutical industry apparently lacks precise data on the dimensions of the unfilled-prescription problem. A *CW* spot-check of leading drug manufacturers revealed that little if any market research on the problem has been undertaken. Most drug marketing men believe that Lakeside Laboratories' 30% figure is a little high.

Most researchers contacted by *CW* peg "lost" prescriptions at 5-15% of the total written. One estimated that unfilled orders vary by company size: large drug firms might lose 5-10% of prescriptions written for their products; small drug firms, 15-20%. And one large firm estimated the loss at 1-3%. In any case, an unfilled prescription represents lost revenue.

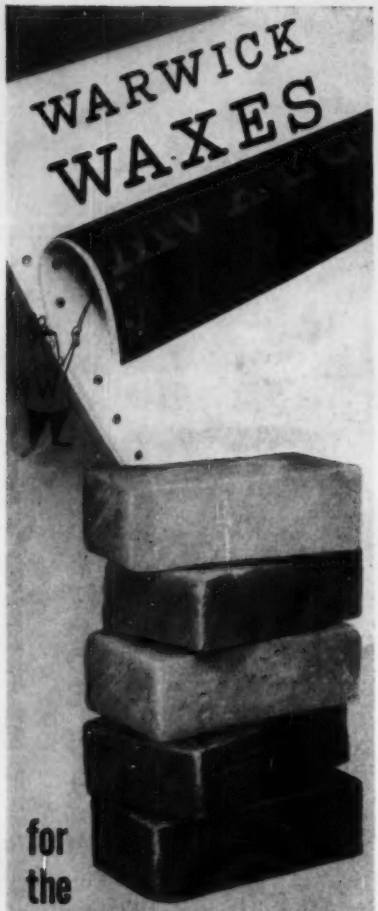
Sparking current interest in the subject is the study reported by Lakeside. The product chosen was well established in a specific geographical area of 180,000 population. (Lakeside declines to name the product or its manufacturer.) The drug had been marketed for four years and was enjoying "good dollar-volume sales" at the time the study was made.

Solicitation of doctors in confidence produced names of 100 patients who had obtained prescriptions for the drug during the previous two weeks. Market researchers checked pharmacists in the area to spot the prescriptions, checked with patients in cases where pharmacies had no prescription records.

Finding: 31 prescriptions went unfilled. Some 17% of the orders were unfilled because the pharmacist was out of stock, had insufficient stock or thought he was out of stock. Another 6% were not filled because the patient "felt better the next day." In three cases, the pharmacy was closed; and in two instances, the patient had a previous unsatisfactory experience with the drug. A sprinkling of other factors accounted for the remaining "lost" prescriptions.

Because the results pointed strongly to inadequate





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SALES

inventory as the root of the problem, the manufacturer tried to convince the area's drug merchandisers to back up stocks with extra inventory. Actual store calls on wholesale and retail accounts were made, but no other increase in promotion or detailing was undertaken. Sales of the product, reports Lakeside, increased 26% during the following six months.

Gibson feels that the survey will prove useful throughout the industry. Reasons: it was statistically random and the main cause shown—inventory problems—is common and long-standing among druggists.

Some variation, says Gibson, may be found in unfilled-prescription rates for different products. It's natural to think, says Gibson, that slow-moving items may be out of stock more frequently than the fast-sellers.

Price, apparently, was not a factor in failure of patients to get prescriptions filled. (In recent years, the industry has been under broad criticism for its price levels.)

Prescription: What is the answer to the "lost" prescription problem? For the inventory side of the problem, say drug marketing men, the answer is fairly obvious: encourage wholesalers and retailers to stock larger quantities. This can be accomplished by more intensive persuasion by drug salesmen, promotion through normal media, lectures to pharmacist groups. One *CW* source suggests that drugstores keep records of all requests that they are unable to fill. But an equally effective means is likely to stem from inventory help policies.

Drugstores are being offered some 400 new products every year, some in a variety of dosage forms. Obsolescence, of course, renders part of the inventory useless. Thus, retailers are normally cautious about adding new inventory. To encourage maintenance of adequate inventory, drug producers may have to liberalize distribution policies.

That could mean such things as allowing longer periods in which unopened stock could be returned to the producer for credit, wider use of "prescription savers." The latter, now used by some firms for new products, entails free distribution of a small extra quantity along with the drugstore's order. If the pharmacist gets only one prescription, he can fill it without cracking regular stock and

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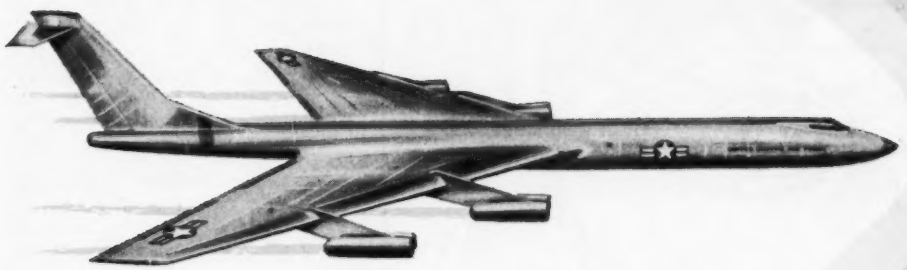
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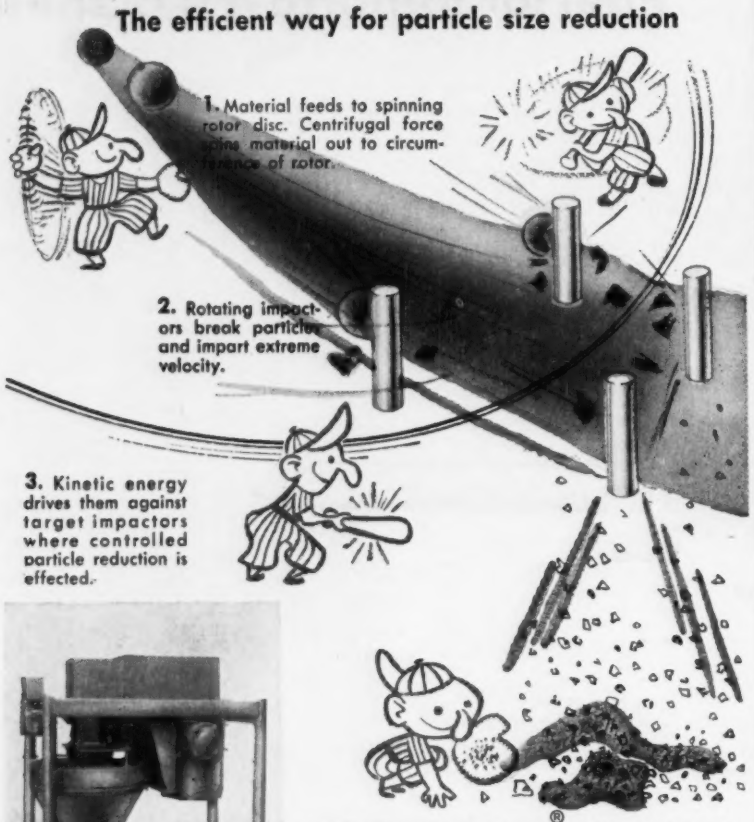
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SALES

thus preserve his return rights. And simple signs on pharmacy doors, showing the location of the nearest open store, could go a long way toward preventing lost sales due to closed stores.

Consumer Education: The consumer side of the problem may be more difficult to solve. There's little, for example, that can be done about the patient who has tried a remedy once before and found it wanting. And patients who "feel better the next day" present a vexing problem. Urging patients to get prescriptions filled quickly has been suggested as a worthwhile educational attack on this phase of the problem.

Educational efforts beamed at the trade and the consumer could easily sport a steep price tag. One large Eastern drug producer speculated that the extra sales to be gained in "lost" prescriptions might not be worth the cost of winning.

Yet, a fair number of drug marketers believe that unfilled prescriptions—even at a 10% level—represent a serious challenge. When the nation's loss in health is counted in, the matter seems too big to be ignored.

DATA DIGEST

• **2-Mercaptoethanol:** Eight-page bulletin suggests applications in metal pickling, resin production, chain transfer agent in polymerization and in textile processing. Data on physical properties and brief description of major chemical reactions are included. Union Carbide Chemicals Co. (New York).

• **Sulfur handbook:** Comprehensive 156-page book treats all major aspects of sulfur production, handling, storage, melting, pipe systems, metering, filtration and burning. Detailed sulfuric acid conversion tables and selective bibliography are also presented. Freeport Sulphur Co. (New York).

• **Titanium:** Subject matter embraces conversion of ore and sponge to ingots, mechanical, thermal and physical properties, corrosion resistance and characteristics of various mill products (billets, biscuits, rings, forgings, bars, etc.). Design data, weight tables, manufacturing tolerances, etc., are tabulated for reference. Harvey Aluminum (19200 South Western Ave., Torrance, Calif.).



Polystyrene foam keeps heat in... cold out... costs down

BENZENE

Benzene is an essential component of the polystyrene foam now being used in more and more ways as a structural insulation and in many other applications. When you need Benzene for styrene or any other chemical application, be sure to order from Enjay. In the aromatics group Enjay also markets para-XYLENE and has available ortho-XYLENE in quantities for product development and research. The complete line of petrochemicals marketed by the Enjay Company is available for industrial use.

For complete information and ordering... Write or call our nearest office. Enjay's extensive laboratories and expert staff of technicians are always ready to help with any compounding or processing problems. Shipments can be made in tank car, truck, or 55-gal. drums.

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PETROCHEMICALS

DOW | NEWS...catalyst for chemical progress

Without some medium of news, the discovery of a new chemical product or process would lead a quiet, unproductive life. News is the catalyst that turns a discovery into profit. This series of advertisements is intended to speed your reaction to new products and processes, shortening the time between their discovery and the day they can be put to profitable use in your own business.

You may wish to check certain items in this advertisement and forward to those concerned in your company.

ROUTE TO:

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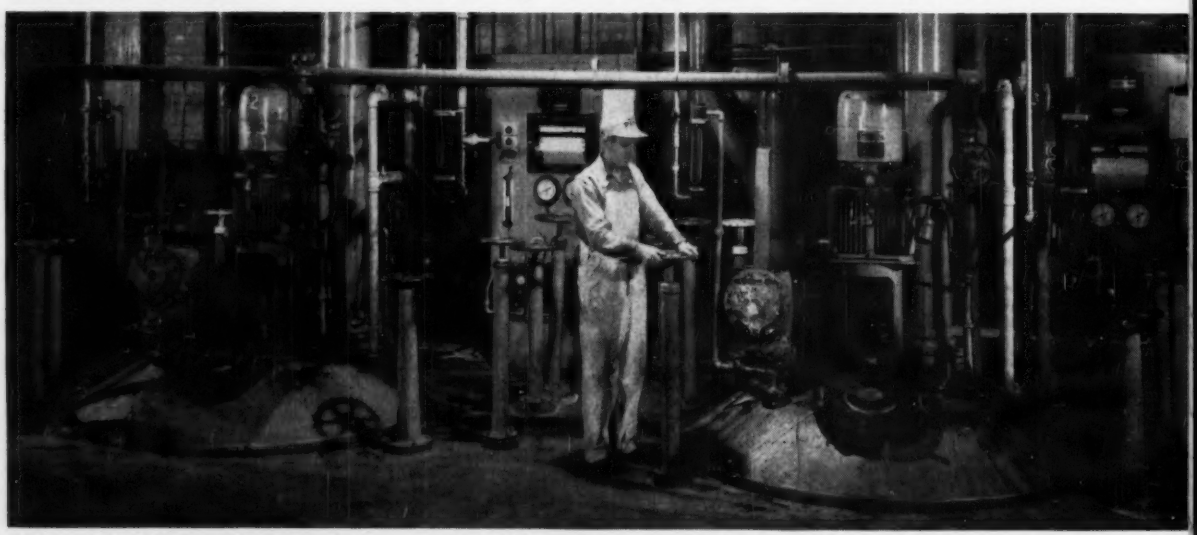
CHEMICAL 'COOK' ELIMINATES PROCESSING FAILURES

The danger of direct fire and the enormous pressures of steam have made high temperature processing by either of these methods uncertain . . . often times unsafe. Dowtherm® A, organic heat-transfer medium, keeps a steady hand on high temperature control, while reducing fire hazard and cutting pressures to as much as one-thirtieth that of steam.

The automatic electric frying pan may have made the "processing" of such a thing as a fried egg practically foolproof. But in industrial high temperature processing, heat control still is a problem in many plants where pinpoint accuracy is vital to the uniform quality of the finished product.

From potato chips to automobile parts, these products have traditionally been processed using direct fire or steam. Each system has had inherent drawbacks, . . . the potential hazard of fire or the high cost of equipment to handle steam at high pressures. And neither has been notably satisfactory in making it easy to keep temperature gauges from wavering.

Safe, steady heat is now a reality, however, with the use of Dowtherm A as a vapor phase heat-transfer medium. This "thermostat" chemical is highly stable, permitting processors to maintain temperatures with fraction-of-a-degree accuracy between 350°F. and 750°F. And this accurate heat can be supplied to several processing units at different temperatures if desired. Be-



Equipment for the use of Dowtherm A often pays for itself in three to five years through reduced costs and improved production.

cause the heat source for systems using Dowtherm A can be located at a safe distance from the actual processing operation, the danger of fire is greatly reduced.

Contrasted to the heavy, high cost equipment necessary to contain 700° steam under more than 3,000 pounds pressure, Dowtherm A at the same temperature takes light handling because it exerts only 110 pounds pressure per square inch.

The singular attraction of Dowtherm A as an unequaled medium for precision heat transfer has led hundreds of processors to install new or modified equipment to handle the chemical. But then other dividends accrued, too. These processors have found that systems using Dowtherm A were actually self-liquidating in three to five years time through reduced insurance rates, decreased operating and maintenance costs, improved production.

Dowtherm A has been used for more than 10 years with outstanding success to mold plastics and rubber products, distill fatty acids, process paints and varnishes, manufacture linoleum and in a wide variety of other applications in food processing, chemical processing and metal plating.

Special Dowtherm products now have been developed for profitable new uses. Examples are Dowtherm SR-1 for subsurface snow removal systems and Dowtherm 209, a freeze point depressant for ebullient cooling.

★ ★ ★ ★

If you aren't already profiting from these and other Dow chemicals, we suggest you write for complete information to THE DOW CHEMICAL COMPANY, Midland, Michigan, Chemicals Sales Department 911AM4-4.

METHOCEL:

These gums stretch over widest viscosity range

Versatile, synthetic gums are expanding into new areas of textiles, paper, food and paint manufacture. And a big reason for this expansion has been the wide usefulness of Dow's family of synthetic gums with the widest viscosity range . . . the Methocel® products.



60-page Methocel Book describes properties and uses of versatile synthetic gums.

With available viscosities ranging from 10 cps. to 15,000 cps., Methocel gums have shown exceptional capabilities as thickeners, stabilizers, film formers, emulsifiers, suspending agents and binders.

These water-soluble, nonionic gums have a profitable performance record in improving products and processes . . . from basic viscosity control to conquering such complex problems as suspension polymerization. It takes no stretch of the imagination to discover their potential usefulness in your business. A close look at the most recent 60-page book on Methocel products will show you.

One-stop shopping for POLYOLS

In the colossus of the modern department store, you'll see occasionally a sign which says something to the effect, "If you can't find what you're looking for . . . just ask for it".

The chemist or processor looking for the right polyols for his own particular application will find the same assurance of supply in the Dow inventory of these basic chemicals, accurately labeled "world's widest line of polyols".

This amounts to more than just purchasing convenience, however. It means the men at Dow have much to offer the polyol user, too, in the way of technical service, research information and new polyol products for experimental use as intermediates, plasticizers, emulsifiers, lubricants, antifoamers, coolants, solvents and other products.

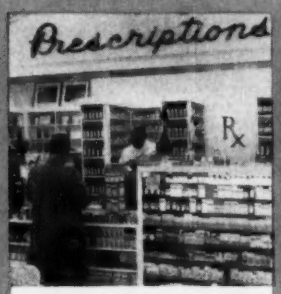
DOW CHEMICALS basic to the chemical processing industry

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Organic Acids and Esters
Inorganic Chlorides, Bromides and Bromates • Nitrogen Compounds
Amino Acids • Glycerine • Salicylates
Phenyl Phosphates • Chelating Agents
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THE DOW CHEMICAL COMPANY
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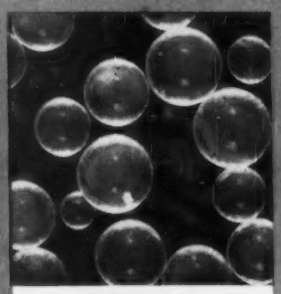
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ION EXCHANGE RESINS
Dowex® 50W, white cation resin with excellent bead strength and uniformity, is newest member of Dowex products for many industrial processing applications.



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Most grades of bromine and brominated products are available from Dow where nearly 70 years of leadership in research, know-how and production are at your disposal.



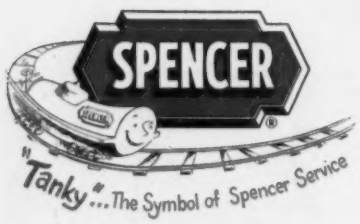
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Wet Motor Tests Corrosion Armor

Seventy-five maintenance engineers were introduced last week to CRC, a versatile new corrosion inhibitor by Corrosion Reaction Consultants, Inc. (Philadelphia). Featuring a variety of properties and suggested for a wide range of uses, CRC was dramatically shown off (see pictures, right) as a compound that could "dry out" a water-soaked electric motor in less than 15 minutes.

But to most of processing management, other applications of the novel compound will have as much appeal—CRC is said to remove rust and contaminants from metals, plastic and painted surfaces, and give them durable moisture- and corrosive resistance. And, it is relatively inexpensive to apply, costs $5.70/gal, covers at a rate of 1,000 sq.ft./gal. The smaller sizes (to 16 oz.) are packed as aerosols; larger sizes (to 55 gal. drums) can be applied with any standard spray gun or brush, or by dipping.

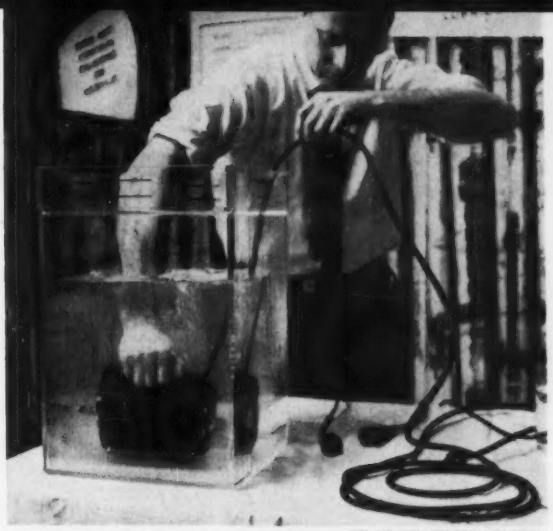
Won't Hurt: "Most people are a little reluctant to try it on equipment. But we tell them that even if it doesn't help, it won't do any harm," says George Kolb, vice-president in charge of sales. And on applications tried so far, Kolb has been more than right—CRC has helped.

The most outstanding example is the drying out of electric motors after a fire at Arguto Oilless Bearing Co. in Philadelphia late last fall. CRC was used on three motors and controls that had been in the basement under water for about 12 hours, had them back in service in 15-20 minutes. In all, 35 motors were treated. On the largest, 25-hp. motors, Kolb estimates that two 16-oz. aerosol cans were needed to treat each.

Paint Base: Most of the experience has been in shipboard tests where CRC is proving its effectiveness in highly corrosive salt atmospheres. In addition to treating motors and electronic equipment, CRC has been used as a base coat under paint. And, it is now being tested on control panelboards made of melamine. The panelboards, when wet with salt water, become good conductors, burn. Preliminary results show CRC may be an effective impregnating material.

In one chemical plant, CRC is being used to coat ductwork carrying chlorine fumes. Service life hasn't yet been determined. But it has already extended duct-life beyond that of uncoated ducts.

No Cure-All: "We certainly don't have all the answers and don't wish to detract from other coatings. But where other coatings fail, or sometimes can't be used, we feel CRC may be the answer," says Norman Larsen, the firm's studious, Plato-quoting president. He

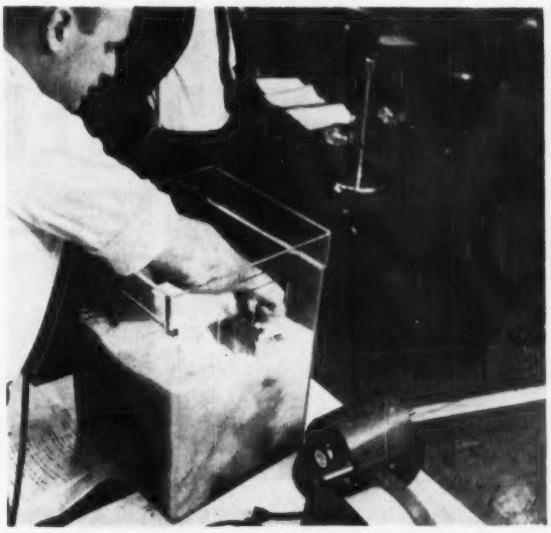


CW PHOTOS—EDMUND GILCHRIST

SOAKED: Motor is held under water for minutes.



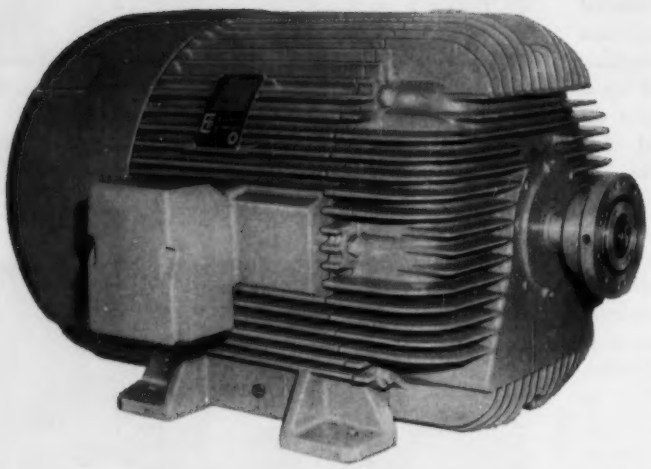
DRIED: Motor is immersed in inhibitor 15 minutes.



RUNNING: Motor proves ready for return to service.

ELLIOTT C-W SEALEDPOWER MOTORS

This new 300-hp unit is the largest of the Elliott C-W "family" of ribbed-frame enclosed motors, pioneered in the United States by Crocker-Wheeler.



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ELLIOTT Company

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WB-5

PRODUCTION

doubles as the firm's chief research chemist, underscores the "Consultants" part of the company name. While the formula now available appears useful in fresh- and salt-water atmospheres, many chemical atmospheres may require formula variations. But that is just what Corrosion Reaction Consultants was set up to provide when formed last year by Chas. J. Webb Sons Co., a Philadelphia wool dealer. (Webb has been diversifying as the wool business has declined.)

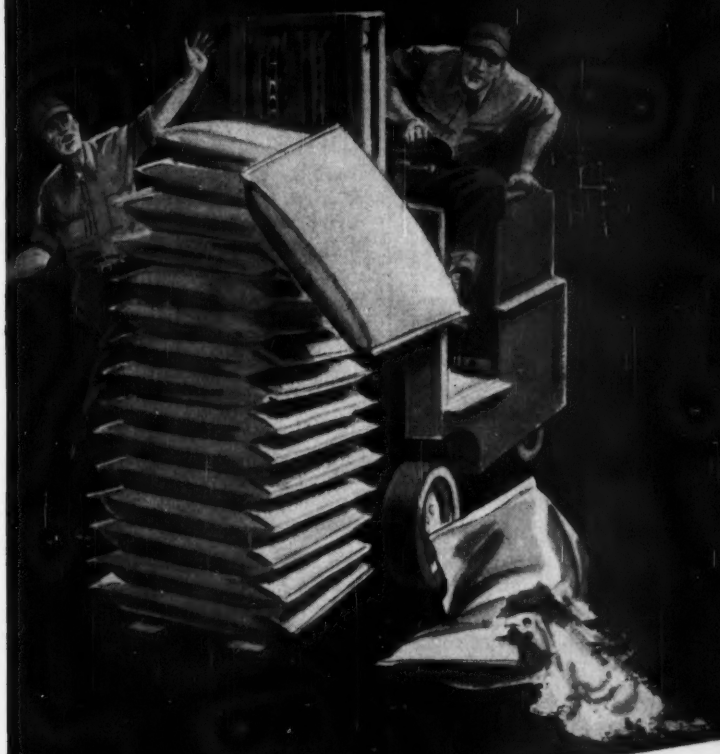
As now offered, CRC is a thin, light-amber-colored liquid. It leaves such a thin coating on materials that it will not affect the working action of precision parts, doesn't have to be wiped off before materials or equipment are put into use. It is compatible with lubricants, has some lubricating action of its own. An electric motor, for example, can be run while submerged in CRC, or can be spray-protected while in operation.

It does not give off explosive or flammable vapors at temperatures over 150 F, has a flash point of about 250 F. It will not support spontaneous combustion at temperatures up to 96 C and has been certified by the U.S. Coast Guard for storage aboard vessels.

Adaptable Formula: Larsen won't tell the CRC formulation in detail, describes it as an organometallic with wetting agent and solvent, any parts of which can be varied, changed to fit conditions of service. The organometallic imparts the corrosion resistance; the wetting agent gives covering power.

In multimetal systems, such as those found in electric motors, corrosion builds up in the form of massive crystals composed of the salts of each type of metal in the system. The CRC corrosion inhibitor releases the surface tension of the salt crystals, removes them from the metal's surface.

Since the film does not harden, cracking is not a problem. But the film does not last indefinitely, must be replaced periodically. "If anyone asks us how often they should treat for protection, without study I would have to say 'how high is up?' " says Larsen. "In some applications, the CRC film has remained effective for a year. In other applications, a treatment is required each week. When



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Multiwalls
Cut Slippage
Prevent Breakage

FIELD REPORT

TO: B.D.

RE: How Super-Magnetized Cut Claims for [redacted].

Because his is an expensive product, Mr. [redacted] insists on maximum protection for his shipments. Losses through sack breakage due to slipping had become something of a phobia with him. Since he switched to our Super-Magnetized Multiwalls he has not had a single claim arising from slippage.

Actual cash savings have far and away absorbed our upcharge for these bags. He also reports an improvement in customer good will.

Hudson Bags increase your sales — cut your costs!

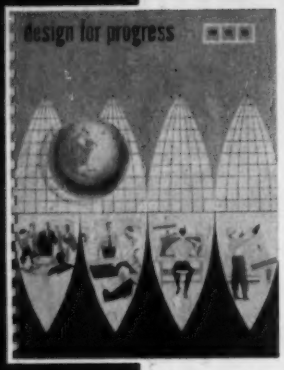
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PRODUCTION

we get a specific problem to solve, we'll recommend a formulation and the frequency of treatments," he adds.

Problems are what the company is after. "Electric motor and electronic components (e.g., printed circuits) have responded well to treatment. And we've had success with treatment of tools and metal stock that ordinarily would require storage in dehumidification chambers or coating with heavy, hard-to-remove gels," says Kolb. But beyond this, experience is limited.

However, according to James G. Biddle Co., maker of insulation testers, over 84% of electrical failures are caused by insulation failure, and over 12% are caused by moisture. This should keep Corrosion Reaction Consultants busy until other problems come in, and provide maintenance men with a useful aid for plant care.

EQUIPMENT

Package Boilers: Cleaver-Brooks Co. (Milwaukee) has extended its line of C-B package boilers with the addition of 400-, 500- and 600-hp. sizes. C-B boilers, now available in 18 sizes from 15 to 600 hp. are intended for high- or low-pressure steam, can be fired with oil, gas or a combination of the two.

•

Temperature Controller-Indicator: Westinghouse Electric Corp. (Pittsburgh) has a new indicating temperature controller, Type 701 Limitemp, that monitors and controls temperatures from 100 to 400 F. Accuracy for control is ±3 F; for indication, ±6 F. Typical applications: monitor temperatures of bearings and windings of electrical equipment, and materials in process.

•

Velocity Probe: United Sensor & Control Corp. (Box 127, Glastonbury, Conn.) is out with a new cylindrical probe for measuring total pressure, static pressure and flow direction in liquid and gas streams. The probe is available in ⅛-in. size.

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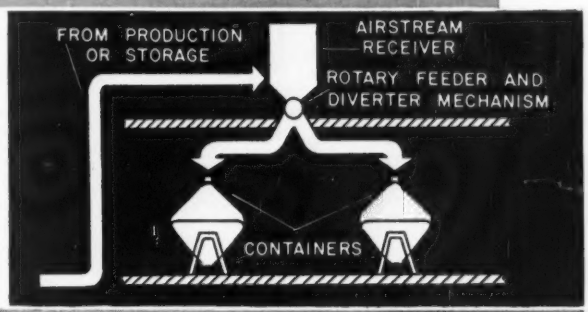
Stack Sampler: Gelman Instrument Co.'s (P. O. Box 86, Chelsea, Mich.) new Process Sequential Sampler automatically collects 12 dust samples in sequence on two-inch filter disks from process stacks and vents. Air may be sampled at 2-4 cfm.

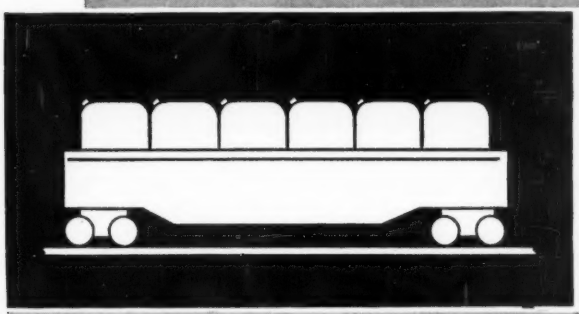
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Dracco *Airstream* conveyors + collapsible containers

Shipping, receiving and storing high-purity materials in collapsible rubber containers has streamlined between-plant bulk handling. Now Dracco has adapted its advanced pneumatic conveying techniques to this important new method, providing a thrifty combination of automation and sanitation which maintains the highest standards of product purity.

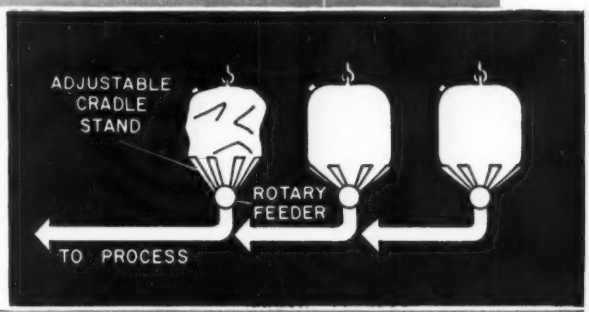
Load containers directly from production or storage with Airstream Conveyor System. Handling is fast, automatic, completely enclosed. One-man supervision saves labor costs.





Ship via rail, truck or barge. Store outside until contents are needed. Containers are air-tight, weather-proof, reusable.

Unload and distribute material to process with Airstream Conveyor System. No loss or waste. Material is never exposed to moisture or contamination.

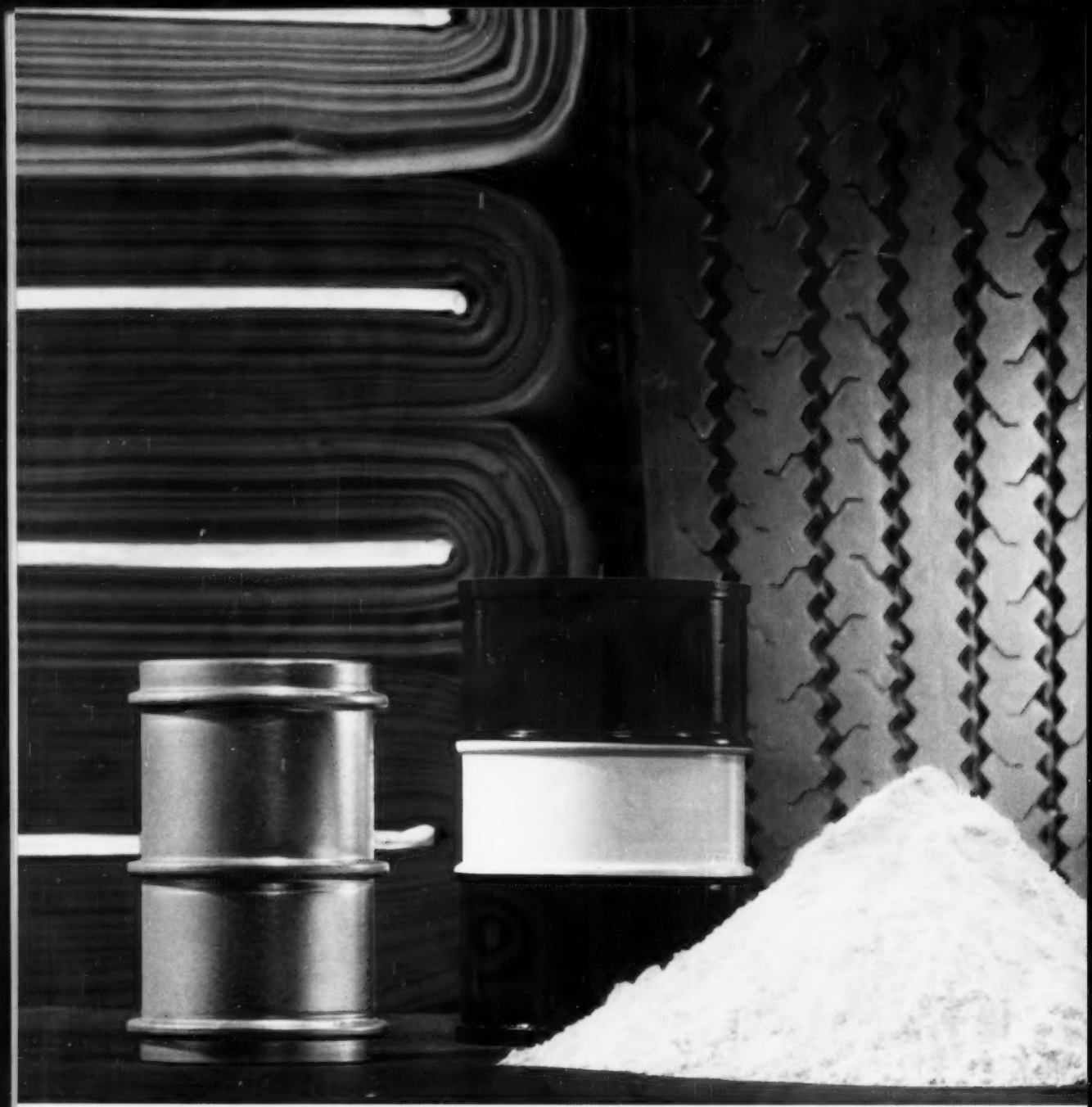


Automatic Airstream Conveyors can be teamed up with all types of portable containers to introduce faster, better handling at less cost. Write or call for further information.

DRACCO DIVISION OF FULLER CO. **4080 East 116th Street • Cleveland 5, Ohio**

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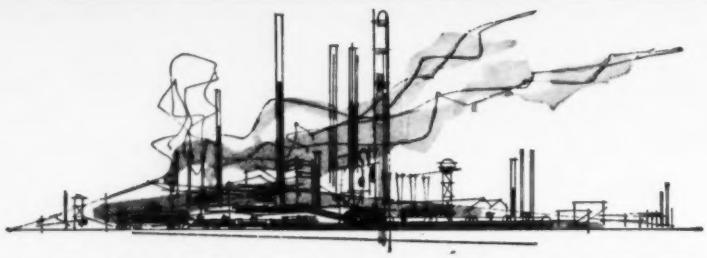
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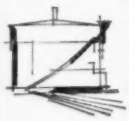
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Anhydrous Ammonia, Barium Chemicals, Benzene Hexachloride, Calcium Chloride, Calcium Hypochlorite (Pittchlor®, Pittabs®), Carbon Tetrachloride, Caustic Potash, Caustic Soda, Chlorine, Chlorinated Benzenes, Chloro IPC, Chrome Chemicals, Hydrogen Peroxide, Muriatic Acid, Pacific Crystals, Perchlorethylene, Rubber Pigments (Calcene®, Hi-Sil®, Silene®), Soda Ash, Sodium Bicarbonate, Sodium Sulfate, Titanium Tetrachloride, Trichlorethylene



General American does a lot more than just build tank cars

General American's design, engineering, fabrication and erection facilities are available to solve many processing and storage problems. Here are some of the products and services offered.



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Tanks of all types for every kind of liquid. Cone roof structures and eight WIGGINS CONSERVATION SYSTEMS including floating roof types with the famous WIGGINS safety seal that reduces fire hazard and eliminates losses from thermal breathing.

Kanigen® Chemical Plating

When your equipment must resist corrosion and abrasion, investigate KANIGEN® nickel alloy coating. From process equipment to tank car interiors, KANIGEN does the job economically and efficiently.



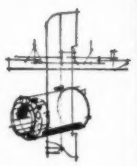


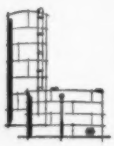
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UOP's Molex process uses molecular sieves to:

- Upgrade octane ratings of gasoline by removing low-octane normal paraffins.
- Split narrow cuts or full-boiling-range mixtures uneconomical to separate by fractionation.
- Yield normal paraffins that may ultimately be of greater value as petrochemical raw materials.
- Boost capacity of isomerization units by eliminating buildup of cyclic components in recycle stream.
- Provide one-step separation continuously, with low utility requirements, short payout time.

Sifting Out Problem Petrochemicals

Petroleum processors are eyeing new ways of using molecular sieves to upgrade gasoline. Newest candidate for the job is Universal Oil Products' (Des Plaines, Ill.) Molex process, described for the first time at last week's meeting of Western Petroleum Refiners Assn. in San Antonio, Tex. (CW Technology Newsletter, March 28).

Also featured at the meeting was a report by The Texas Co. on the Texaco selective finishing (TSF) process, which the company has been piloting at Beacon, N.Y., since it was introduced last fall.

Common goal of the Molex and TSF processes is the selective removal of normal (straight-chain) paraffins from the higher-octane, branched-chain and cyclic components of gasoline, whether it is straight-run gas or that made by isomerization. Because molecular sieves can selectively absorb the normal paraffins, the refiners can split gasoline mixtures that can't be separated economically, if at all, by conventional fractionation.

Besides solving some of the knotty processing problems involved in cleaning up hard-to-separate mixtures, says UOP, the Molex process yields products superior to gasolines as motorists know them today. For example, it is current practice to add aromatics to mask the adverse effect of normal paraffins on antiknock performance. But that is only a partial solution. Reason: boosting the highly aromatic content of a fuel increases its sensitivity (difference in octane numbers as determined by the "research method" and the "motor method"), and high sensitivity often indicates poor road performance. Removal of the normal paraffins by the Molex system, on the other hand, reduces sensitivity, besides improving octane rating; it provides an added advantage of cleaner-burning fuel.

Process Compatibility: UOP aimed for a one-step, continuous process that could be incorporated easily into normal refining operations. The Molex process—a primary separation section for extracting normal paraffins from the product stream and a secondary separation section for recovering them—fulfills those aims. The molecular sieves are used in fixed-beds at constant temperatures; feed and separated product streams are uniform and continuous.

The economic advantages of using Molex treatment, says UOP, depend on a number of operating conditions. In the separation of isobutane from normal butane (or isopentane from normal pentane), for example, fractionation may have an advantage where operating limitations—concentration, capacity and product purity—aren't severe. But on complex mixtures, such as pentane-hexane streams, Molex has a decided edge over other separation methods.

In any separation, says UOP, Molex requires less utilities—steam, electricity—than does fractionation. And with fractionation, investment and utilities requirements for a given capacity increase sharply as increasingly precise separations are desired. But Molex can handle a broad range of separation requirements, including many that are too complex to be accomplished by fractionation.

By-product Is Savings: Another important saving may be gained by using the recovered straight-chain by-products. Most refineries will likely feed these materials to an isomerization unit, such as UOP's Penex, for conversion into high-octane, low-sensitivity gasoline. In such a process, too, the Molex treatment can be used to separate unconverted normal paraffins from the isomerized products, prevent the buildup of cyclic components in the recycle, which occurs when output is fractionated. Result: recycle load to the isomerization unit is reduced; and its capacity, in essence, is boosted.

In the case of an isomerization unit handling 2,500 bbls./day of mixed pentanes and hexanes, UOP estimates the Penex-Molex installation would require an investment of about $1.5 million, rather than the $1.7 million needed for a Penex-fractionation unit. In addition to this initial saving of almost $200,000 on capital costs, the Penex-Molex combination could be operated for $325/day less, and would yield $184/day more product.

Molex can also be employed in several ways in conjunction with catalytic reforming, says UOP. All catalytic reformates contain five- to nine-carbon straight-chain paraffins, with

HEAT STABILITY OF PVC RESIN FORMULATED WITH DIFFERENT PLASTICIZERS

PLASTICIZER	Parts Per Hundred Parts of Resin	Heat Stability 2 hrs. @ 350°F.	Approx. Relative Cost* (Isosebacates 100)
DIOIS (Diisooctyl Isosebacate)	50 60	Excellent Excellent	100
DOIS (Di-2-ethylhexyl Isosebacate)	50 60	Excellent Very Good	100
DOS (Di-2-ethylhexyl Sebacate)	50 60	Very Good Very Good	135
DIOS (Diisooctyl Sebacate)	50 60	Very Good Very Good	135
DOZ (Di-2-ethylhexyl Azelate)	50 60	Very Good Very Good	105
DOP (Di-2-ethylhexyl Phthalate)	50 60	Very Good Good	65
DIOZ (Diisooctyl Azelate)	50 60	Good Good	105
DOA (Di-2-ethylhexyl Adipate)	50 60	Fair Fair	90
DIOA (Diisooctyl Adipate)	50 60	Fair Fair	90
ODA (n-Octyl-n-decyl Adipate)	50 60	Fair Fair	90
DIDA (Diisodecyl Adipate)	50 60	Poor Poor	90

Formulations:		Parts	Parts
	PVC	100	100
	Plasticizer	50	60
	Stabilizer A	2	2
	Stabilizer B	1	1

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DOP was included in these tests since it is often used in blends to increase the compatibility of other plasticizers.

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the normal pentane and normal hexane usually exceeding the total of all the other, heavier, straight-chain components. Octane rating falls off rapidly as the molecular weight of the normal paraffin increases, necessitating removal of the seven-carbon and heavier components.

Money Talks: Referring to pilot-plant tests, UOP estimates that an $800,000 Molex installation handling 5,000 bbls./day of reformate would increase the value of products by $2,381/day. Deducting the Molex operating costs of $654/day, the increase in gross profit comes to $1,727—sufficient to permit payout in 1.27 years.

The economics of adding both isomerization and Molex processing to catalytic reforming of straight-run gasoline is even more attractive. In the case of a reforming system handling 10,000 bbls./day of full-range, straight-run gasoline, isomerization plus Molex treatment would boost product value by $11,471/day. (It would also mean increases of $2.4 million in capital investment, $1,710/day in operating costs.) Payout time: 0.68 years.

Cyclic Process: Similar improvement of octane ratings has been achieved by The Texas Co.'s pilot-plant tests of its TSF process. In this case, processing economics were based on the alternating operation of a two-bed separation unit, with one bed absorbing and the other desorbing for a 20-minute cycle.

TSF processing of straight-run naphtha indicated that significant improvement—of about five to 12 octane numbers—may be expected over the whole boiling range. Another series of tests pointed to advantages of reformate splitting followed by TSF. "Front end" components showed improvement of four to seven octane numbers; the "bottom end," which is largely aromatic, showed less improvement (about one octane number).

Cost of operating a 6,660-bbls. TSF unit on a mixed hexane charge containing 22% normal hexane was estimated at 27.3¢/bbl. of charge. Subsequent blending of the 5,180 bbls. of pure isohexane with 32,880 bbls. of motor gasoline raised the octane number from 97.5 to 98.3, for a total cost of 0.24¢/research octane-gallon.

Raw Material Source: Of more than passing interest to chemical proces-

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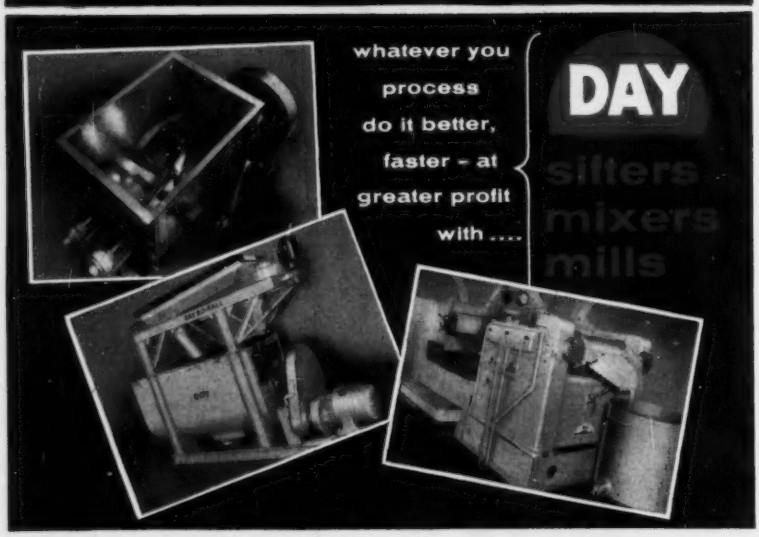
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sors is the possibility that Molex processing may provide an abundant source of raw materials for chemical synthesis. The substantial quantities of normal heptane and heavier straight-chain by-products that it makes available are essentially brand-new products, for which special uses may well develop, says UOP. The normal paraffins could be the starting point for the synthesis of several types of straight-chain organics, such as aldehydes and alcohols. And since they're easy to crack, the normal paraffins would be a "preferred stock" for high-temperature pyrolysis to make ethylene, etc. Moreover, because they have the highest heat of combustion per pound of any hydrocarbon, they may be of value in the preparation of jet or missile fuels. In short, the molecular sieves may mean a bonus for both oil refiners and chemical producers.

PROCESSES

Unsaturated Alcohols: Unsaturated alcohols of high purity can be produced by a new process developed by Farbenfabriken Bayer AG. (Uerdingen, Germany). Carbonates of 1, 3-propanediol are first produced by reaction with phosgene or organic carbonates; these are then decomposed at higher temperatures with basic catalysts to yield the pure unsaturated alcohols.

•

Tertiary Amines: In another area of research, Bayer (Leverkusen, Germany) has received a preliminary patent (DAS 1,029,380) for producing tertiary amines from nitriles. The amines are catalytically hydrogenated in the presence of salts of secondary amines. Reaction is carried out under pressure in alcoholic solution at room or slightly higher temperature. Yields are reported to be over 80% when the secondary amine is used in excess.

•

Hasche Process: Wulff Process Co. (Huntington Park, Calif.) has purchased Hasche process patents from Koppers Co. (Pittsburgh) for the production of acetylene and ethylene. Simultaneously, the company signed agreements covering worldwide engineering and construction of Wulff plants by Koppers, Lummus Co. (New York) and The Fluor Corp., Ltd. (Los Angeles).

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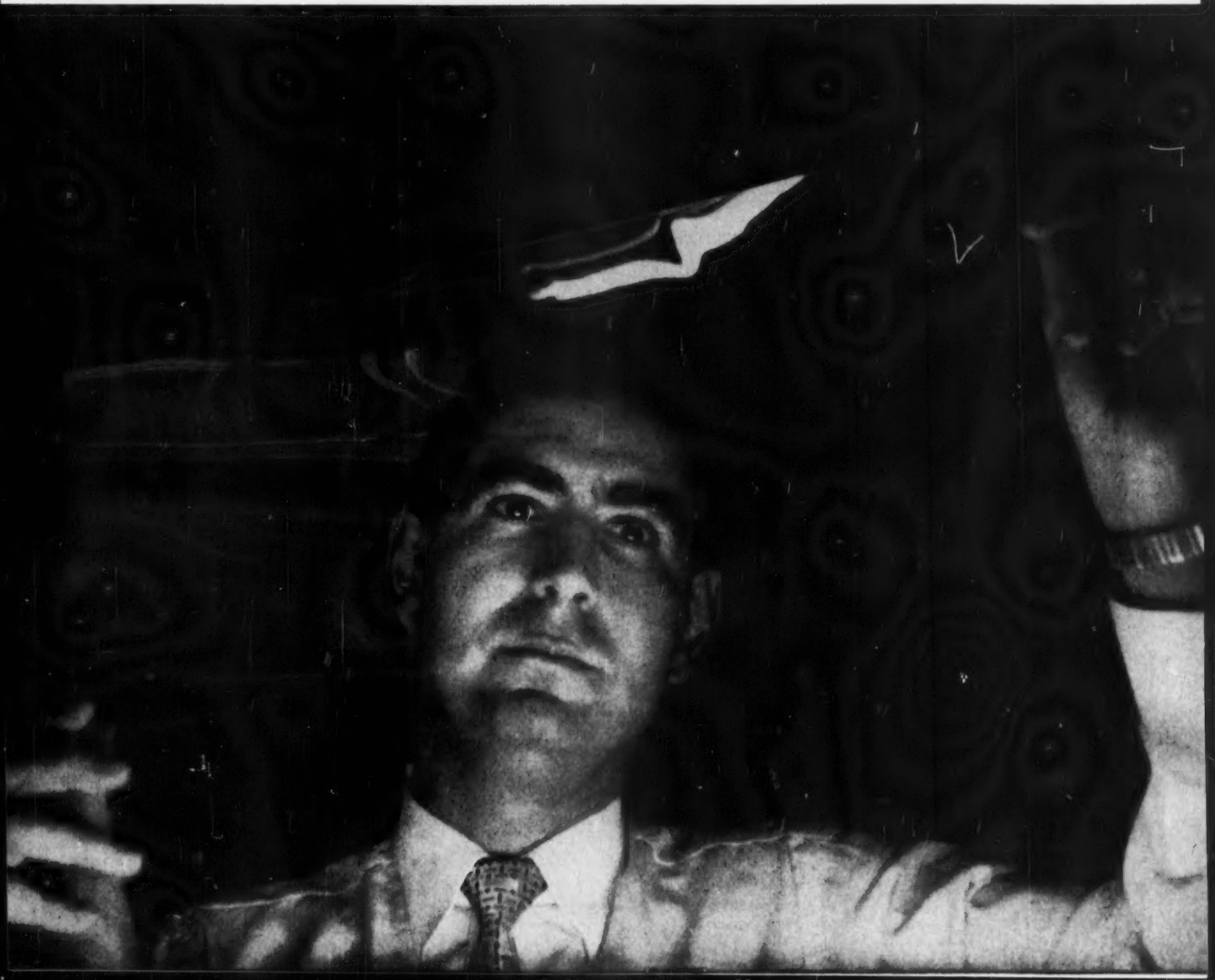
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CW PHOTO—FRANK AMELIA

'Easy to use' pitch for dispenser units has boosted sales of carpet cleaners to U.S. housewives.

Putting Carpet Cleaners in $20-Million Class

As U.S. housewives plunge into their spring cleaning, makers of rug cleaning specialties are taking a greater interest than in years past. This spring's work could put the cleaning compounds on the road to $18-20-million sales in '59 — twice the '54 mark. Key to the surge: home-use mechanical scrubbers that have boosted the consumption of chemical-containing compounds.

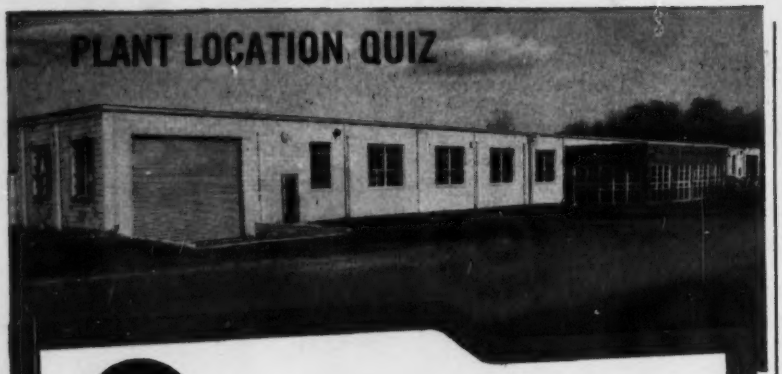
The cleaning compound makers that also sell mechanical units stand to gain most—Glamorene Inc. (Clifton, N.J.) is looking for 50% sales growth this year. And Bissell Carpet Sweeper Co. (Grand Rapids, Mich.), which brought new competition to the specialty cleaners field when it launched its shampoo and dispensing unit in Jan. '58, predicts rug cleaner sales will be up 20% in '59 over '58.

While stimulating cleaning compound sales, these dispenser-shampooers are booming along in their own right, are currently retailing at a $30-40-million/year clip. Most major rug cleaning companies are now "packaging" the units with their chemical products. According to one manufacturer, "The business of selling a rug cleaning product is now a business of selling machines. Sell the applicator and you sell the product for which the machine was designed."

Bissell, for example, is shelling out $900,000 this year for promoting its applicator, $200,000 for its cleaning product. As for repeat sales, Bissell says that 96% of its machine buyers will use Bissell shampoo for the life of the applicator.

Cleaning Up: Although more than 250 different rug cleaning products are available, only a handful are in national distribution. Some of the leaders in the retail rug cleaning business besides Bissell and Glamorene are Glamur Products, Inc. (Syracuse, N.Y.), with Easy Glamur; Carbona Products, Co. (Long Island City, N.Y.), with Carbona Soapless Lather; and S. C. Johnson & Son, Inc. (Racine, Wis.), with Johnson Rug Cleaner.

All these companies sell applicators as well as cleaners. Besides competing with many local rug cleaner makers, these companies also compete against home drycleaning fluids, household ammonia, bleaches, all-purpose detergents, and a variety of products such as tea and sauerkraut



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juice. Clayton Hulsh, president of Glamorene, says, "Women even use coffee grounds, tea leaves and household detergent on their carpets, probably use more detergents than all packaged rug cleaners combined."

What's in Them: About 60% of the retail rug cleaners sold today are liquid products, the remaining 40% are dry products. Aerosol foam products, aimed primarily at upholstery touchup cleaning jobs, aren't much of a market factor in the rug cleaning business.

Although the carpet industry has brought out many new carpet fibers and blends within the last five years, formulations of retail rug cleaning products have changed little. Bulk of the retail liquids are based on nonionic or anionic detergents, sometimes containing added dyes, essential oils, mildew preventives and mothproofers.

Although the syndets have the bulk of the liquid market, many rug cleaning soaps see action. Soap products usually contain about 15% coconut oil, 2-3% ammonia, 7-8% glycerine and 77-78% water. Most of the dry products contain an inert base, such as sawdust, bentonite or ground corn cobs, impregnated with a solvent such as trichloroethylene or carbon tetrachloride.

Generally, 1 lb. of dry rug cleaner will clean a 9x12-ft. rug, at an average cost of about $1.30/lb. Price of the liquids, on the other hand, varies with the concentration of the detergent. Although cost of cleaning a 9x12-ft rug with a liquid cleaner is usually about $1.60, price of the concentrate ranges from $2.50 to $4/half-gallon. Price of the applicator is usually about $8.

Who Buys Them: Best market regions for rug cleaners are New York, New Jersey, Pennsylvania, the East North Central states and the Pacific Coast states, in that order.

Although sales of rug cleaners during the spring housecleaning months are 15-20% higher than during the rest of the year, the business of selling rug cleaners is becoming more of a year-round business.

Large hotels and other institutional buyers (restaurants, theaters, transportation terminals) account for only 4-8% of the total retail rug cleaner sales volume.

Companies sell the bulk of nationally advertised rug cleaners through

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SPECIALTIES

the nation's 500 or so houseware jobbers. Leading retail outlets are department, hardware, appliance, furniture and variety stores. Nonfood outlets probably account for 60% of sales, supermarkets handle the remaining 40%. Although supermarkets are a large outlet for repeat cleaning product sales, they move few applicators, are reluctant to stock such a "high-priced" item.

According to specialty makers, carpet salesmen generally don't promote the retail cleaners. "Carpet retailers," they say, "don't like to service the carpets. When a salesman is concerned with selling a $500 rug, he doesn't want to be bothered with making a 50¢ profit on a can of rug cleaner."

The Competition: On the other hand, professional rug cleaners say that the retailers make up a valuable selling force. Wade, Wenger and Associates (Chicago), franchiser of the Servicemaster system, which claims to be the largest network of carpet and furniture cleaners in the world, works closely with carpet retailers. Wade, Wenger has set up agreements with carpet dealers whereby they recommend and sponsor the Servicemaster plan to their customers. When the customer wants a rug cleaned, she simply calls the store where she bought the rug, and the store turns the request over to Servicemaster. More than 4,000 retailers use the Servicemaster program, including Carson Pirie Scott in Chicago, W. & J. Sloane in New York, Dayton's in Minneapolis and Bullock's in Los Angeles.

Professional rug cleaning, as well as do-it-yourself rug cleaning, is growing.* But specialty makers don't consider the growth of the professional a serious threat to their business. "We're selling a product, they're selling a service," explains one rug cleaner maker. "Do shampoo makers consider the professional hair dresser a serious threat to their business?"

Moreover, professional rug cleaners are putting greater emphasis on selling the homeowner not only a professional cleaning job but also the do-it-yourself cleaning items. These items won't do a professional job,

*According to Kenneth Hansen, president of Wade, Wenger, the professional rug cleaning business hit $90 million in '57 with small gains in '58. Wade, Wenger's total sales of service and home-care products under its Servicemaster plan were about $12 million in '58. Servicemaster is budgeted for gross sales of $15 million in '59, expects sales of $50 million by '60.

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SPECIALTIES

but they will keep the pro's job looking good as long as possible. Wade, Wenger, for example, retails a do-it-yourself applicator for $9.95 and offers it, with Fiber Fresh, a detergent solution, at $2.95/qt.

Amateur Professionals: Many professional rug cleaners are beginning to recognize a definite market for do-it-yourself cleaning. They're making a big pitch to the housewife to use rentable cleaning units.

Racine Industrial Plant, Inc. (Racine, Wis.), promotes its Host dry-cleaning method through professional rug cleaners. Housewives can rent its machine with enough compound to clean a 300-400-sq.ft. rug for $12.95, including pickup and delivery.

The Future: As the trend to newer fabrics and lighter colors in the carpet field continues, carpets doubtless must be cleaned more often. Also, population growth and higher incomes mean there will be more carpet to clean. According to the American Carpet Institute, 150 million sq.yds. were turned out in '58—80% of which went into homes. In years ahead, carpet sales are expected to increase 5% annually, a hefty market growth for makers of retail cleaning products and for those who formulate products for the professionals.

PRODUCTS

Resists Salt: Plas Chem Corp. (6177 Maple Ave., St. Louis, Mo.) has introduced a clear coating for aluminum. It's called Plas Chem 1200, can be applied by roller, brush or spray, is said to have good salt-spray resistance.

•

Sprayed Detergent: G. Barr (Chicago) has developed an aerosol detergent, Fresh 'N Clean, for use on elastics and fine fabrics. It's packed in a glass, plastic-coated bottle, has a metering value. Colgate supplies the detergent.

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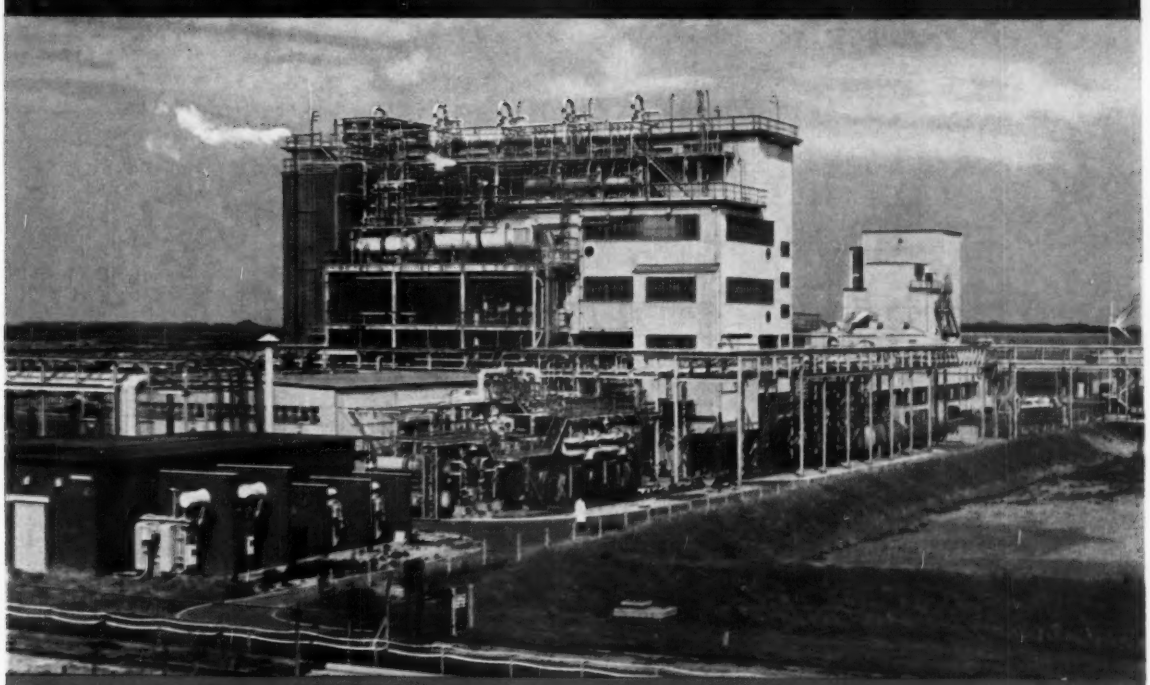
Tough Softener: A new antibacterial fabric softener, Velva-Soft-G, has been introduced by Armour & Co. (Chicago) for use by laundries.

•

Metal Cleaner: Rohm & Haas has a new detergent, Triton QS-15, for metal cleaning in soak tanks. It is amphoteric, contains 100% active ingredient, is also suggested for washing bottles, garage floors, equipment.

STONE & WEBSTER IN GREAT BRITAIN

New Flexibility in Chemical Production



Designed for the greatest flexibility consistent with efficient operation, the new Imperial Chemical Industries Limited plant at Wilton, England, currently produces an unusually wide range of copolymers from butadiene and three other monomers. Facilities provide for taking the product as latex, baled crumb or as powder.

The extensive experience of the Stone & Webster organization in design and construction of synthetic rubber facilities during and since World War II was fully utilized in the planning of this versatile British installation. Chemical processes for the new plant were developed by I. C. I., while final designs and actual construction were carried out by Stone & Webster Engineering Limited of London.

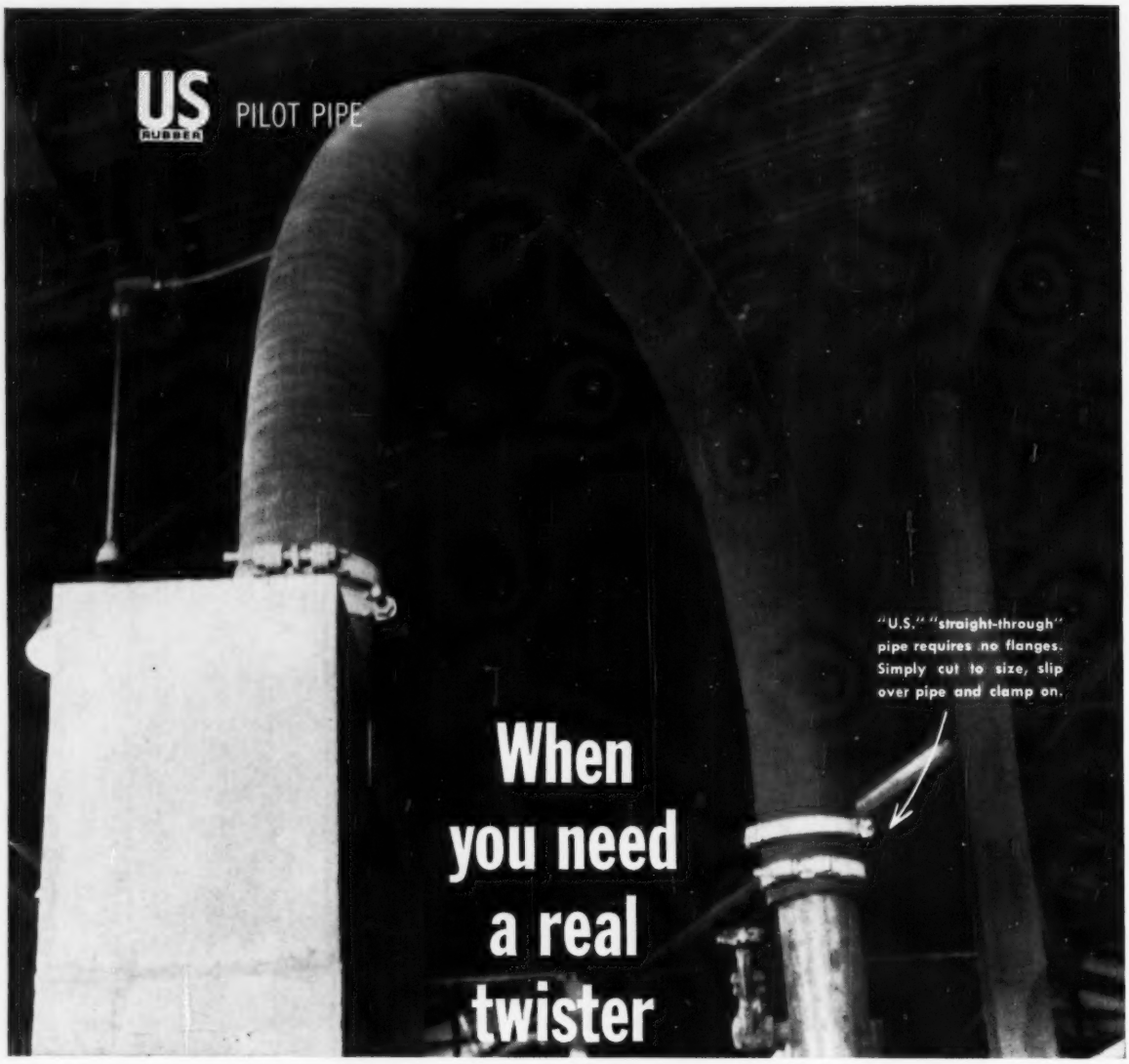
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BIG REASONS WHY U. S. PILOT PIPE IS USED:

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• • •

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Technology
Newsletter

CHEMICAL WEEK
April 4, 1959

Du Pont denies trade talk that it plans to produce acrylonitrile at Orange, Tex. According to the reports, the company—biggest acrylo user in the world—had decided to go ahead with production of the material from propylene and ammonia. It has a patent (U.S. 2,736,739) on a route of this type (*CW, Feb. 28, p. 70*).

Du Pont's stated position has been—and it insists that there has been no recent change—that it is investigating a number of methods of producing acrylo, but that it has not yet made any decision. As for the part of the speculation that says Du Pont is looking for sources of propylene in the Southwest, the company points out that this would be normal procedure for checking out the commercial prospects of the method.

•

Merck Sharp & Dohme and Parke, Davis received licenses this week from the government to produce commercial four-in-one, combination polio-diphtheria-whooping cough-tetanus vaccine. Approval by the U.S. Public Health Service follows good clinical results with the vaccine (*CW, July 19, '58, p. 61*).

•

A basic patent on mercury-cadmium pigments—arch competition for the high-performing, higher-cost cadmium sulfoselenides—has been assigned to Imperial Color Chemical & Paper Corp. The patent (U.S. 2,878,134) covers product and process claims for the pigments (*CW, Feb. 25, '56, p. 59*), which come in a variety of orange, red and maroon hues and feature resistance to chemicals, light, heat and bleeding.

•

An improved titanium trichloride catalyst for polypropylene polymerization reportedly is being readied for commercial production within 90 days by Stauffer Chemical. The new catalyst is said to be out on trial already, produces high-quality polymer at a polymerization rate 5- to 10-fold greater than that of existing catalysts.

•

The first all-American designed continuous urethane-casting machine for casting urethane parts has been unveiled at Mobay Chemical Co.'s laboratories in New Martinsville, W.Va. A new type, the machine casts urethane elastomer parts weighing from 4 oz. up to 96 lbs., can be operated by one person, and does away with hand-mixing of urethane chemicals (*see also p. 21*).

•

A grease that meets the −65F to +400F temperature requirements of military supersonic jet aircraft has been developed by Standard Oil of Indiana. It is a synthetic compounded with aryl-substituted urea as a thickener in a special nonpetroleum lubricating fluid. It is tradenamed Supermil ASU 06752, is being purchased by the Air Force to lubricate bearings of internal brake assemblies in the newer jets. But industrial uses (e.g., steel, glass, ceramics) may lie ahead, the firm believes.

New competition may be brewing for this and other lubes aiming for jobs in supersonic jets. Monsanto has signed a contract with the Wright Air Development Center (Dayton, O.) Materials Laboratory to supply a research quantity of a polyphenyl ether for testing in thermally stable lubricants, hydraulic fluids, and greases. Note: unlike the Celanese and Heyden Newport jet engine lubes (*see p. 83*), the Monsanto entry features stability to nuclear radiation.

•

Flexible fibers and fabrics of 99.9% graphite are now being produced in a semicommercial plant at Fostoria, O., by National Carbon Co., a division of Union Carbide Corp. The materials are made by a complex process in which a conventional natural or synthetic material, such as cotton or rayon, is first carbonized, then made into graphite by 5400 F heat, produced electrically. Any textile form—batting, felt, yarn, woven or knit fabric—can be made into graphite form.

The product now offered in developmental quantities is 40-in.-wide by 7-ft.-long sheeting. Experimental price: $1.50/sq.ft. Potential chemical applications for graphite cloth include reinforcement of plastics for high-temperature operation; bag-type filters for hot, nonoxidizing gases; equipment for handling corrosive fluids; high temperature thermal and/or acoustical insulation.

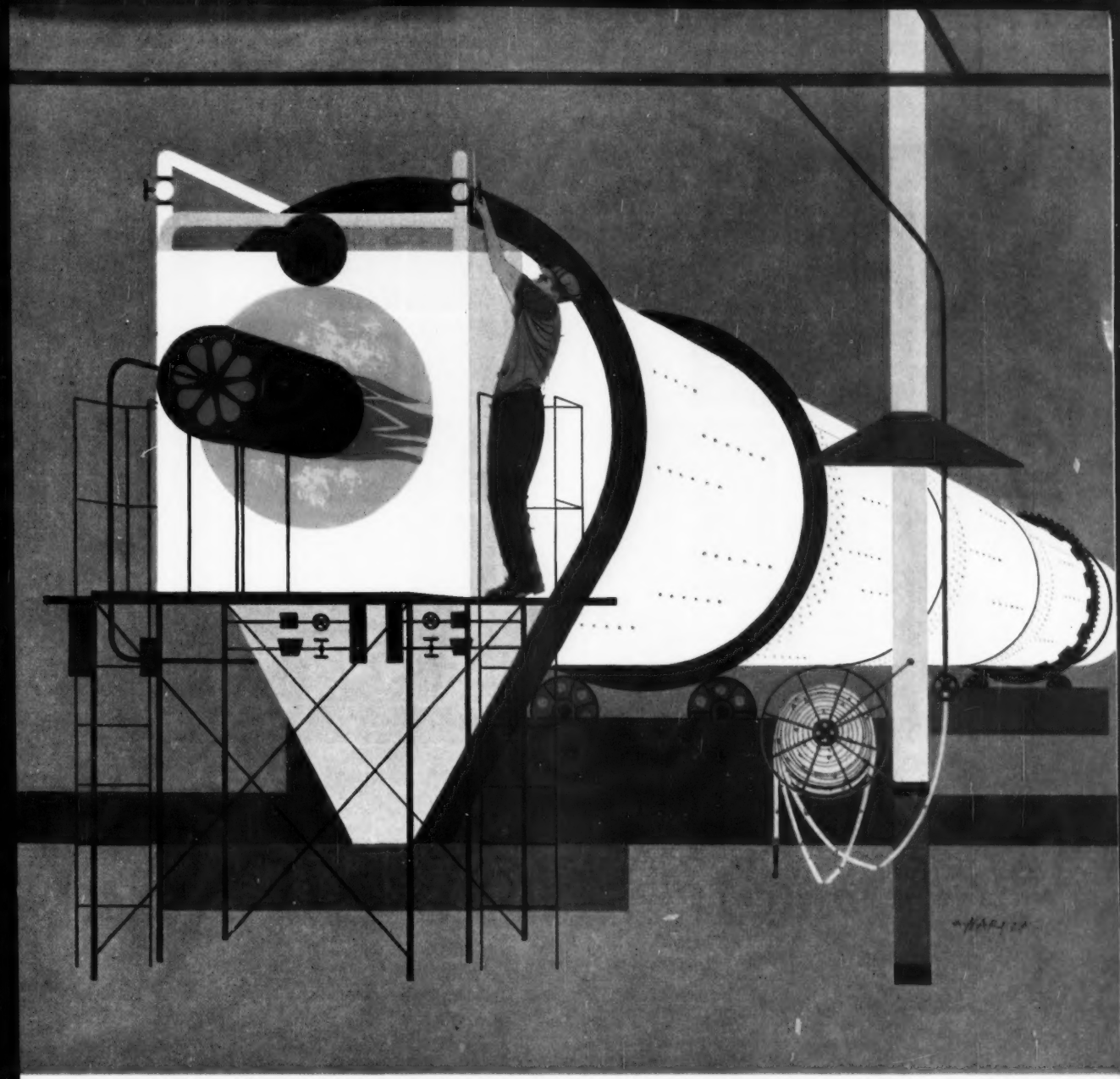
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Orientation of carbon, starch, polystyrene and living cells can be accomplished with pulsed radio waves, according to researchers at the New England Institute for Medical Research (Ridgefield, Conn.). Radio signals in the 5-40-megacycle range cause the particles of different substances to line up with or against the field, suggesting the signals as a means of separating mixtures of different substances. For example, various strains of penicillin mould can be differentiated by the radio-frequency fields. Another potential application might be the aligning of particles before stringing them together, chemically, to obtain stronger fibers.

Floating zone refining can be used on thicker cross-sections, say W. G. Pfann, K. E. Benson and D. W. Hagelbarger of Bell Telephone Laboratories (Murray Hill, N.J.). Instead of melting rods (*CW, Aug. 24, '57, p. 51*), the new technique is to melt tubes and plates. Previously, the surface tension of the material being melted was not sufficient to hold a large rod together until it was melted all the way through. The new study shows that an equivalent cross-sectional area can be melted when distributed over a thinner configuration.

•

Rand Development Corp. (Cleveland) has opened a Moscow office to study Soviet technical and scientific developments for possible use in the U.S. No other U.S. firm except American Express maintains a business office in Russia, although many U.S. corporations send representatives to Moscow on business trips. A patent holding company, Rand also has offices in Dusseldorf, Geneva and Paris, in addition to Cleveland and New York.



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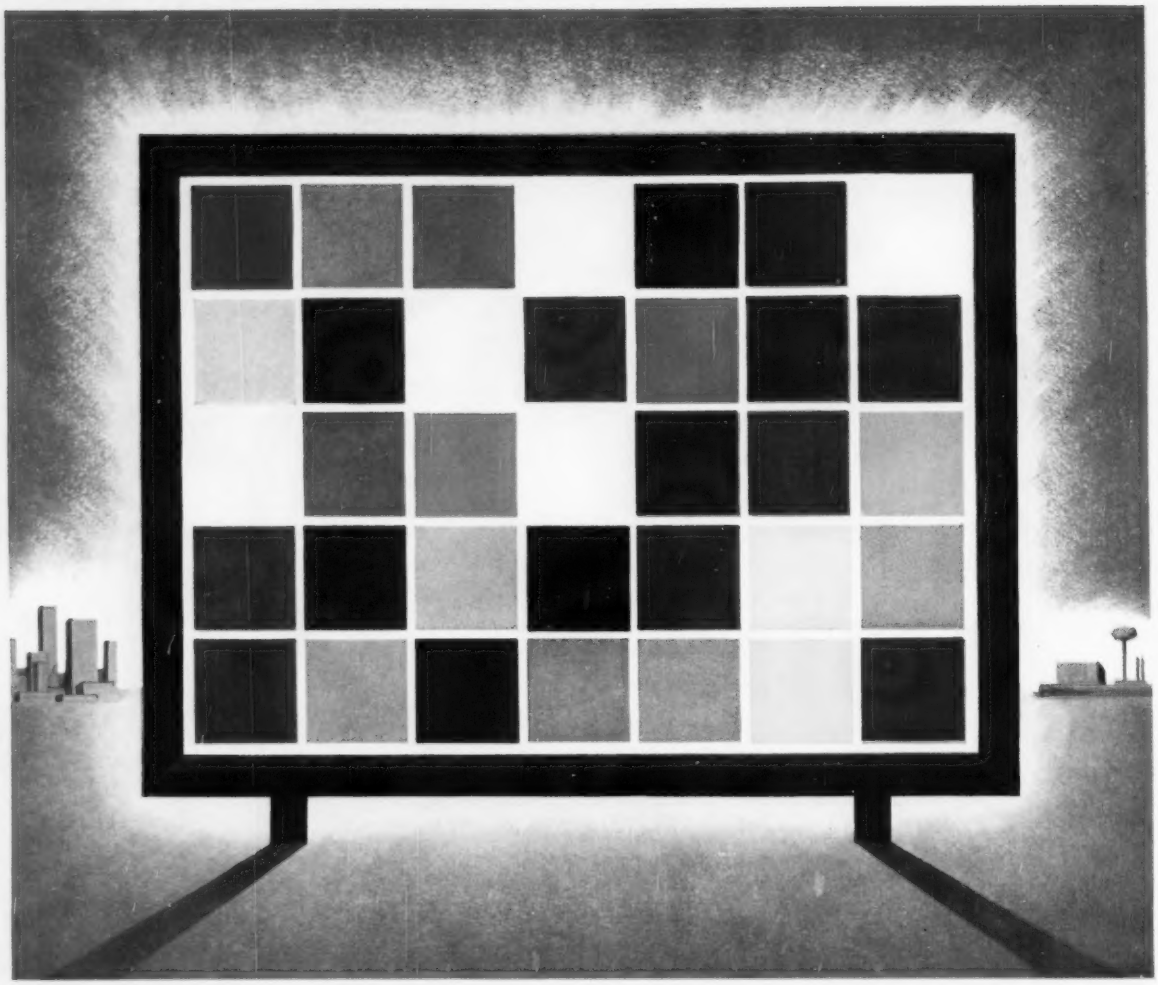
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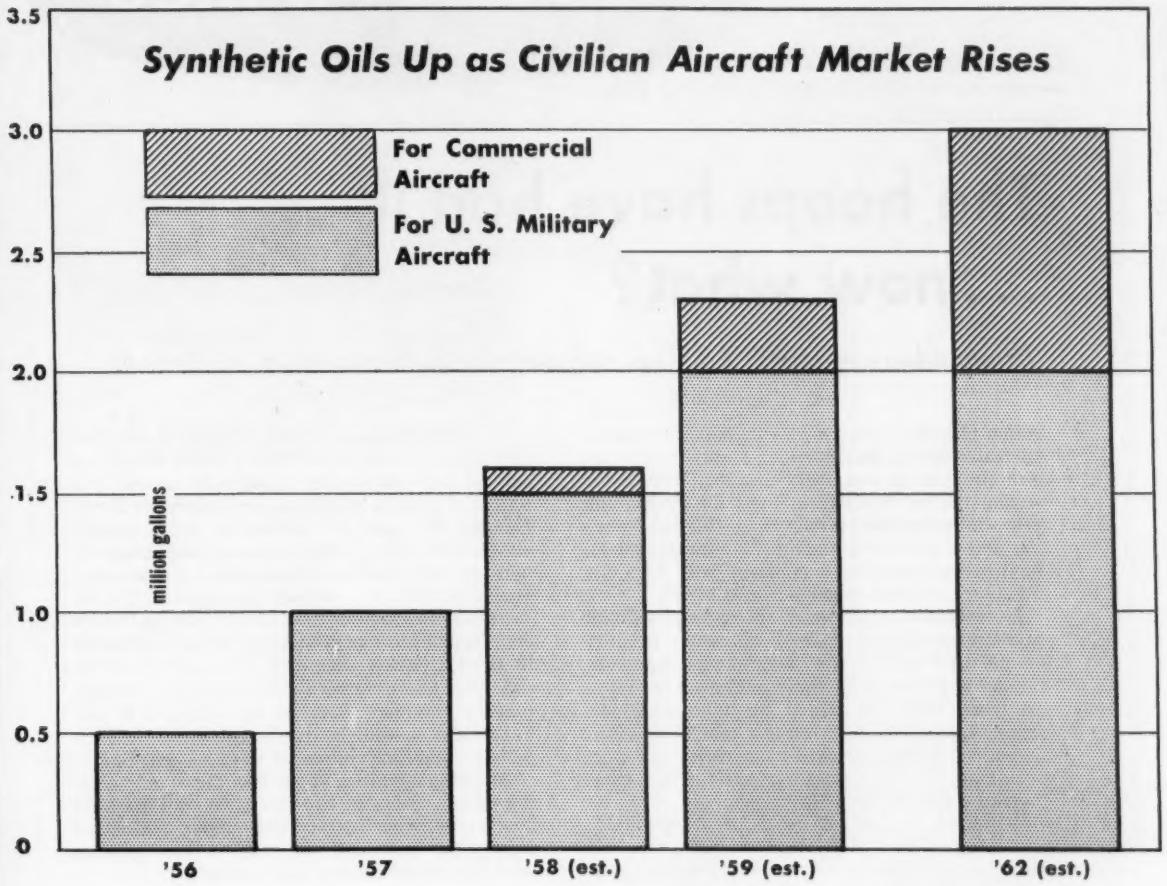
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SHELL



Airlines—Ticket to Synthetic Lube Sales

The current swing of commercial airlines to use of jet planes will, in the next few years, significantly boost demand for synthetic lubricants. For the first time, civilian—not military—needs will account for increased demand.

The shift in markets is due to the changeover, by airlines, to jet-powered aircraft—a change largely made by the military several years ago. Turbine-type aircraft — both military and civilian — already provide the largest single outlet for chemically based synthetic lubricants. The market is admittedly still small compared with the volume of petroleum oils used heretofore by piston-type aircraft. Dollarwise, however, synthetic lubes nonetheless provide a lush market for the CPI.

This year, U.S. domestic airlines will use an estimated 200,000 gal. more of synthetic lubes than they did in '58 — a significant step toward still greater consumption to come.

Besides the base lubricant stock, chemical additives such as antioxidants, gear load improvers, etc., will be required.

Military Major Market: Right now, the largest market for synthetic lubricants is the U.S. Army and Navy; consumption was over 1.5 million gal./year in '58. This represents about 12 million lbs. of chemical products (1 gal. of lube weighs, on the average, about 8 lbs.).

In '59, U.S. military consumption is expected to go still higher—some experts peg it at some 2 million gal. Despite this increase, military requirements for synthetic lubes will then level off — probably close to this figure — during the next few years. Reason: military aircraft requirements for the last three or four years have been for use in new jet-type fighters and bombers, which have gradually replaced the older piston-type aircraft. Now that the changeover is just about completed, new jets will be replacing older jets rather than conventional aircraft. Since the number of military aircraft is expected to remain roughly the same, consumption of synthetic lube oils should stay around the 2-million-gal./year mark.

Some early predictions were that military requirements would be about 4 million gal./year by '60, but trade observers now say these projections

HERCULES

Plastics Hi-lites

The hoops have had it ... now what?

Tremendous markets for new polyolefin plastics seen on all fronts

A new plastic—*high-density polyethylene*—was responsible for the hula hoop, undoubtedly the biggest product success story of 1958. There's no similar market windfall in sight for the coming year, but most manufacturers see this same plastic, and a still newer member of the polyolefin family—*polypropylene*—as their best bets for building increased consumer sales in '59.

Housewares, appliances, sporting goods and toys are among the many fields where product planners are now finding ways to whet customer buying appetites with these new plastics. Polypropylene made its bow at the January housewares show in Pro-fax® cutlery handles and dinnerware (*see below*). At the same time Cory Corporation made the first use of Pro-fax in a commercial coffee service.

While the hoops got much of the publicity about high-density polyethylene last year, this material made its most significant long-term gain in another direction. Development of the first thin-wall, non-functional Hi-fax bottle opened up a giant new market for plastics in carrier-type bottles. First employed as a container for Breck Banish, the new Hi-fax bottles were quickly adopted by users of other drug and cosmetic products. Several producers now offer a line of stock Hi-fax bottles in a variety of shapes and sizes.

Meanwhile some of the nation's leading "Soapers" have been market-testing liquid detergents in Hi-fax bottles, with such excellent results to date that a switchover to this new type package may be imminent. The big advantage of Hi-fax in this use, in addition to its ease of fabrication, is its outstanding resistance to stress-cracking.

All three members of the Big Three are sporting either Hi-fax or Pro-fax parts on 1959 cars. The many other applications under evaluation point to an increased use of both these plastics with the model change due next fall.



President A. C. Martinelli of Rogers Plastics Corporation points to his new Lady Arnold dinnerware line for which he selected Hercules Pro-fax.

PUTTING THE WEAR IN PLASTICS DINNERWARE . . . Pro-fax does it in the new Lady Arnold line to the extent that its manufacturer, Rogers Plastics, guarantees these dishes for life against chipping, cracking, and staining. Combining the beauty and elegance of expensive china with the low-cost durability of a tough thermoplastic, this new dinnerware is completely dishwasher proof, and molded in four lustrous pastel colors with a rich permanent gloss.

Hot tip for coffeemakers

A new pouring lip for Cory serving decanters, molded with Pro-fax, polypropylene plastic, looks better, lasts longer and costs less than conventional metal spouts. Cory Super-Tuf* pouring lips will take all kinds of abuse . . . won't dent, crack or stain from hot beverages or harsh detergents. Molded with black Pro-fax, they have a rich, glossy finish that is unharmed by high temperatures or hard use.



BETTER IDEAS FOR BETTER COFFEE ALWAYS COME FROM CORY . . . that's the company's motto and to prove its point Cory uses Pro-fax for a new type pouring spout unharmed by detergents and defying abuse.

Designed to combine with Cory's Majestic* glass serving decanter for the utmost in a modern, smartly styled coffee service, the new spouts can also be employed as replacement parts with current model Cory handles and neckbands.

**Registered trademark of Cory Corporation, Chicago, Ill.*

No trouble with Pro-fax

The manufacturer of this durable and attractive trouble lamp tried other plastics in the handle, but only Pro-fax proved up to the job. Equipped with U.L. approved cords, ranging in length from 20 to 50 feet in red, green, or black, with matching Pro-fax handles, this new trouble light features a push-button switch, convenience outlet, and cord strain relief, is oil, grease, acid, and alkali resistant. Pro-fax handles are molded by Precision Plastics Company, Philadelphia, Pa., for M. Black Manufacturing of the same city.



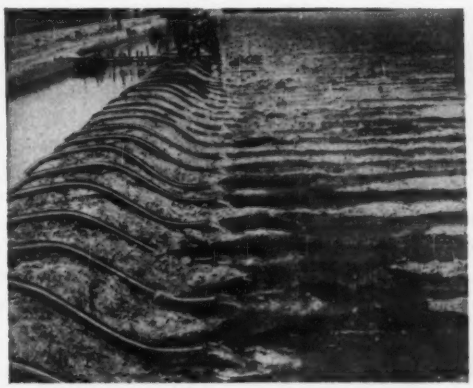
Market Hi-lites

A new cup produced by Crown Plastics Cup Company, Fort Worth, Texas, demonstrates the excellent moldability of Pro-fax in thin-wall sections. With a six-ounce capacity, the cups weigh less than a third of an ounce each, yet are unbreakable and can be sterilized. Among their first uses was in hospitals where with re-use after sterilization they have proved actually cheaper than the paper disposables formerly employed . . . Another new Pro-fax hospital item is a plastic bedside carafe and tumbler set manufactured by Zylon Products Company, Pawtucket, R. I. Completely autoclavable and fitted with a disposable plastic-film liner, this well-designed new product promises to revolutionize the entire technique of bedside water service. The first use of Pro-fax in an aerosol type package will be announced by one of the nation's leading cosmetic manufacturers within the next few weeks.

A 7½-inch Pro-fax rope has just replaced a 10-inch manila hawser on the Sinclair supertanker, S.S. J. E. Dyer. A product of American Manufacturing Company, the new plastic rope actually has greater breaking strength than its larger manila counterpart.

Good dam use for Hi-fax

Literally miles of Hi-fax tubing are being used here to siphon water over the high banks of a dammed-up ditch,



in the pre-irrigation of a cotton field. Hi-fax siphon tubes are becoming standard equipment throughout the irrigated West and South, eliminating the labor involved in cutting through ditch banks, providing better control of flow and reducing soil erosion. The Swanson Company of Phoenix, Arizona, first to produce the new Hi-fax tubes, promotes them as "tougher, lighter, with greater resistance to high and low temperatures and higher tensile strength." They are now marketed in lengths from 48" to 90" in both 1" and 2" Hi-fax tubing extruded by Arizona Plastics Extrusion Company, Phoenix, Arizona.

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were highly overoptimistic.

Military technicians are still looking for new lubricants that can be used in some of the advanced engines now under study and, of course, chemical companies are active in this search since synthetic lube oils provide the most likely solutions (*see also p. 83*). One possible major blow to the entire military lube market: decision by the military to switch to rocket-type aircraft, which do not use lubricants.

Commercial Take-off: Turbine-type aircraft have now been put into operation by commercial airline companies. Announced and confirmed orders (for delivery '59-'63) for these aircraft (sold to world airlines) amount to 876 turboprop and turbojet transports. This will mean steadily increasing synthetic lube consumption, especially about '62 and '63, when demand is expected to reach its peak. The same reasoning applies as for the military market, i.e., most of the replacement of piston-type aircraft will be completed by then.

U.S. synthetic oil makers face most competition in world markets from the British. U.S. makers have pretty well cornered the domestic market — including Capitol Airlines with 59 turboprop aircraft — which was about 100,000 gal. in '58. This is roughly half of worldwide consumption, put at about 200,000 gal. in '58. In '59, an estimated 300,000 gal. will be consumed by domestic airlines; a little over 400,000 gal. on a worldwide basis. This year, too, U.S. and British makers will control the market. Projections for '62 are still uncertain, but the civilian worldwide requirement is expected to soar to about 1 million gal./year. Then, however, the nations that are developing their own lubes will be making a bid for at least part of this market.

Testing Problems: Lube oils now used in U.S. commercial aircraft—although not rigidly bound by military specs — will have properties based on U.S. military Specification Mil-L-7808. This is because most U.S.-produced turbine aircraft will be using engines such as the J-57, J-75 and J-79 originally developed for military use.

The development and testing of a new oil is very expensive, requires considerable time. The procedure for testing a new lubricant is generally much like this (the government sharing a large part of the cost):

- The company developing a potential lubricant performs its own tests to see if the material can meet a designated set of Army or Navy specifications. Aim is to enlist help of the military testing groups.
- Before the military will conduct an engine test, however, other preliminary tests, requiring expensive equipment, must be made by the company or, more usually, by an outside testing lab. One such test is the Ryder gear test, which determines the minimum load-carrying ability of the oil. Then the compound is brought to the government's attention, because the military will try out any lubricant that shows potential usefulness. But these engine tests are expensive — about $100,000 each.
- Next the oil is submitted to

Worldwide Orders for Civilian Turboprop and Pure Jet Transports (March 23, '59)

	Delivered	*For delivery in:*				
	1958	*'59*	*'60*	*'61*	*'63*	*Totals*
Turboprops Short-Medium Range	*145*	*132*	*8*	—	—	*285*
Turboprops Long-Range	*36*	*116*	*66*	*10*	—	*228*
Pure Jets Medium-Long Range	*11*	*132*	*293*	*60*	*59*	*555*
Grand Totals	*192*	*380*	*367*	*70*	*59*	*1,068*

Source: Esso Air World.



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Jefferson Chemicals of high interest to the POLYURETHANE INDUSTRY to be announced soon.

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139

MARKETS

Wright Air Development Center for engine tests. The military personnel determine its ability to function properly in the engine.

• In some cases—whether or not the armed services test the compound—an engine manufacturer will perform tests both in the lab, and in a test engine, before approving the oil.

• The airlines service test is the last step usually required for new commercial formulations. The oil is used by one of the commercial lines on their regular in-service aircraft, in a test that usually lasts about one overhaul period—i.e., about 800 flying hours. The engine is then opened and the engineering staff minutely examines the engine.

Distribution Problem: Marketers of conventional oil lubes have a decided advantage in supplying synthetic lubricants to commercial airlines because of their existing distribution channels. Chemical companies are looking at the possibility of supplying their products directly, but they recognize that distribution costs could make this approach prohibitive. An important aspect of selling to the aircraft industry is the need for well-trained technical service personnel—expensive to acquire—and hard to justify considering present market size.

Cost of commercial synthetic lubricants varies, depending upon the quantity bought, and formulation. But price is in the $5-10/gal. range for the formulated lubricant sold in the civilian market. Current U.S. jetliners use lube at the rate of about ¼ pint/hour. Newer types of turbine engines will probably consume more lubricant, but the amounts will still be measured in pint quantities. Loses from leakage do occur, but this problem can be remedied. Drain periods—now about 150-200 hours—will likely be extended as more experience is gained.

For example, one airline which uses one of the earlier turbopropytpe engines has extended oil change periods to 1,900 hours.

One thing that could sharply reduce the airline's requirements for synthetic lubricants, is the possibility of reclaiming the used synthetic oils. Reports are that some of the British airlines have been able to clean up the lubricant used in their Viscount airliners and use it again. If reclamation is practiced with the oils used on the

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Also round quarts!

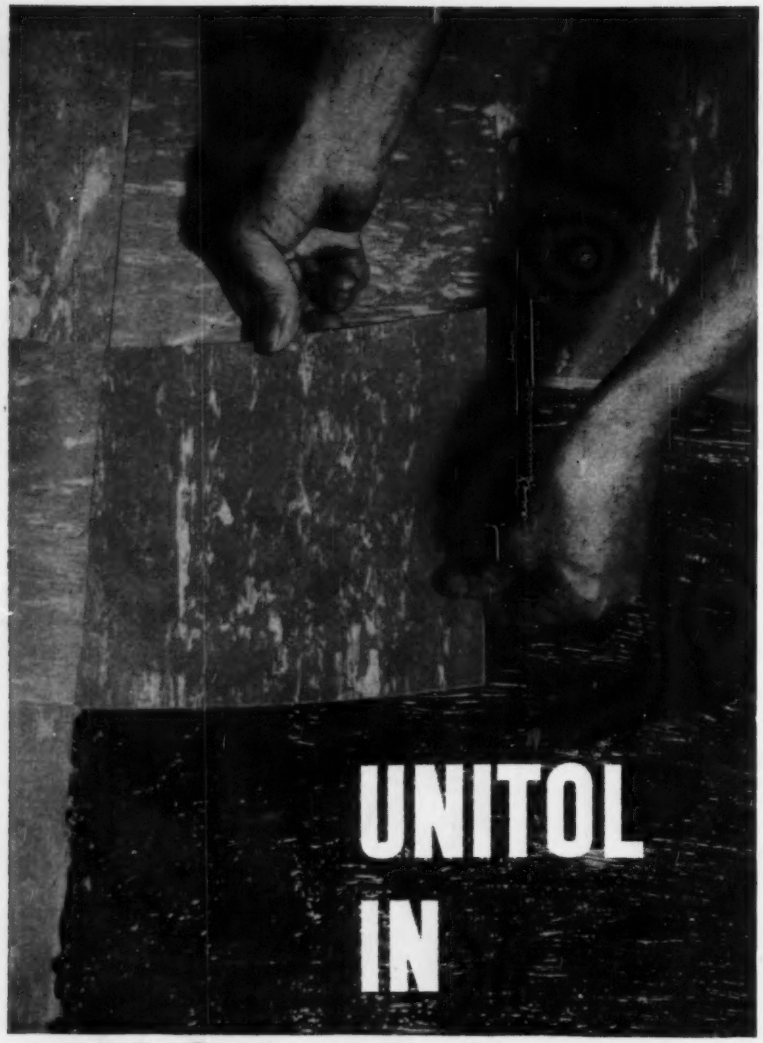
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newer type aircraft, it could greatly reduce the market for new material. Now, while airlines are getting familiar with turbine transports, oil consumption (while still low) is not of great concern. But as the companies strive to economize, they will surely consider oil reclamation for their operations.

Vanishing Market: Petroleum type aviation oil consumption products are expected to drop off as the new turbine aircraft are put into operation. Oil companies, however, feel they will still have a limited market for the pistol type oil, since many of the older aircraft will probably be retained in service, although downgraded to handle freight, or perhaps sold to feeder lines.

The exact compositions of finished formulations are kept closely guarded by the manufacturers. For the commercial lubes, the base materials are generally diesters and complex esters of dibasic acids, or higher aliphatic alcohols and diols. Sebacic acid esters are most commonly used; esters of azelaic and pelargonic are also of current interest. Dioctyl azelate has received approval for use in some turbine engines.

Distribution of approved lubricants to commercial airlines is now done by oil companies, such as Esso, Sinclair, and Shell. Several other oil companies are also actively working to have formulations approved.

Some of the chemical companies that are working in this field — in many cases supplying materials for both commercial and military use— are: Lehigh Chemical; Rohm and Haas; Emery Industries; Celanese; Heyden-Newport; Union Carbide; Dow Corning.

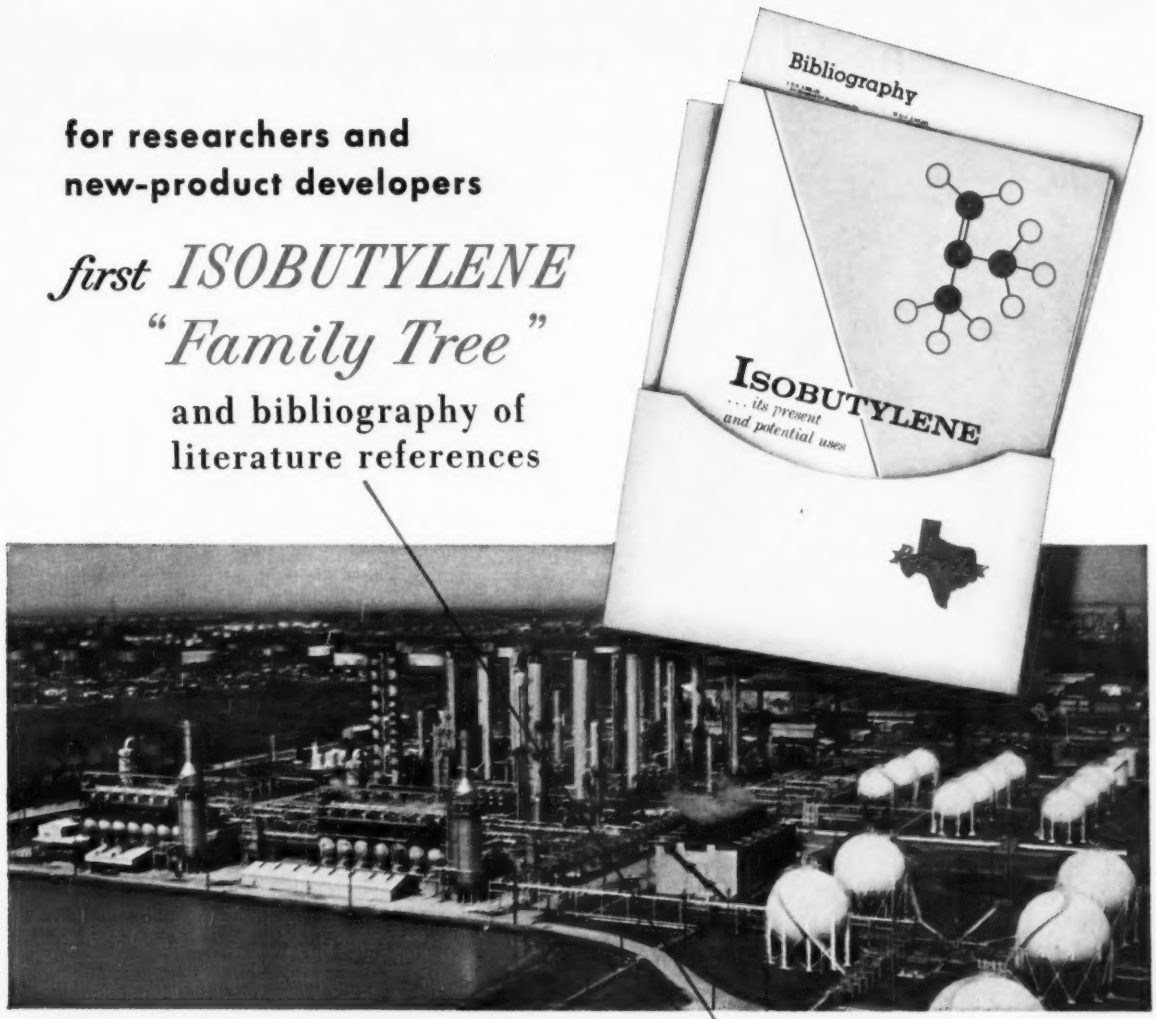
Broader Markets: Although the aircraft field is currently the largest consumer of the synthetic lubricants, it is not the only one. In those special industrial applications, where the synthetic's ability to withstand extreme conditions is advantageous, they also find limited sales. But in many industries, the high price of the synthetic lubricants has forced potential users to stick with other, less-satisfactory products.

With the increasing volumes demanded by the aircraft industry may come price cuts—and an expanding market in several fields for these novel lubes.

for researchers and new-product developers

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Market Newsletter

CHEMICAL WEEK
April 4, 1959

Controversy over choice of chemical to control fire ants is giving some insecticide marketers headaches.

Heptachlor, one compound widely used in the fight (*CW, Feb. 8, p. 97*), has been one controversy center. Last week, Louisiana State University entomologist W. H. Long defended the insecticide as a suitable one, although he did point out that in some tests on sugar cane fields more cane borers were found in treated fields than in untreated ones. But, he told the contact committee of the American Sugar Cane League, borers in all fields are adequately controlled by the state-recommended spray program, which makes use of another insecticide, Endrin.

But the heptachlor treatments are still opposed by some conservation groups on grounds that some desirable wildlife is killed during such eradication programs. Industry view is that a single application of heptachlor will wipe out the fire ants in a given area, and that the single treatment minimizes any bad side effects—which would be temporary at worst.

•

A price list for nuclear reactor feed materials—said to be the first of its kind issued by a private concern—was posted last week by Davison Chemical in anticipation of the growing market for atomic energy fuels (*CW, March 28, p. 30*).

Per-pound prices of uranium materials listed for outright sale: natural uranium metal, $24; depleted uranium metal, $4.85; depleted oxide, $3.30.

Also posted are conversion charges (cost/pound) for the following materials (only the Atomic Energy Commission can own enriched uranium): 1.6% enriched uranium metal, $5.60; 1.6% enriched uranium oxide, $6.75; 25% enriched metal, $65; highly enriched oxide, $100.

Also offered from Davison's new plant in Erwin, Tenn., is a "complete" line of thorium products and cold-enriched scrap recovery service.

•

First purchase of nuclear fuel through international channels is Japan's purchase from the International Atomic Energy Agency of 3.2 tons of natural uranium given to the agency by Canada. The uranium is being sold to Japan at $35.50/kilogram and is governed by the agency's standards of safety and safeguards against military use.

•

A new urea-formaldehyde resin for use in making particleboard (*CW, Dec. 27, '58, p. 73*) is now marketed by Catalin Corp. of America. The high-solids resin was formulated to meet needs of multiplaten, horizontal- and vertical-extrusion processes, features a resin accelerator combination that permits fast cure-time, minimizes objectionable formaldehyde fumes.

Deepest salt mine in the U.S. was opened last week by Morton Salt. The new, $6-million Fairport mine (near Painesville, O.) taps a vast bed of rock salt, 2,000 ft. below the surface, that extends from far under Lake Erie southward to West Virginia. Estimated reserves in the bed exceed 200 million tons—enough for two centuries' production at a 1-million-tons/year clip.

Full production rate of 300 tons/hour is expected by fall, but this output may ultimately be boosted to 500 tons/hour.

•

A permanent, all-plastic prototype house has been built in Japan. The residence has 480 sq. ft. of floor space, is in suburban Kyoto. Total construction cost was 50,000 yen, which figures out to about $140/tsubo (35.6 sq. ft.); cost of a comparable house of orthodox Japanese construction would also be 40,000-70,000 yen. This, says builder-owner Hikonosuke Inoue, refutes the general concept that all-plastic houses (at least in Japan) are extremely high-priced and impractical.

•

Peru will put its first synthetic ammonia plant onstream this month at Callao. The $10-million installation—designed and built by Montecatini of Italy—will be operated by Fertisa (Fertilizantes Sinteticos S.A.) to provide fertilizer for the nation's expanding agricultural industry. Peru has relied largely on natural deposits of guano.

The new plant's output (in metric tons/year): anhydrous ammonia, 20,000; 53% nitric acid, 54,000; ammonium nitrate (fertilizer and technical grades), 35,000; ammonium sulfate (fertilizer grade), 7,500; 98% nitric acid, 1,500.

•

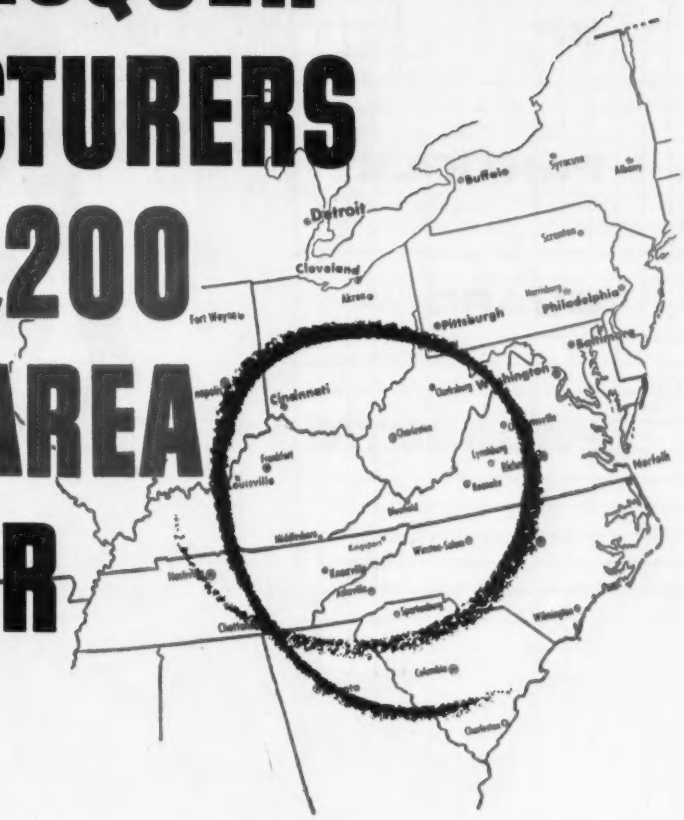
TVA has made its first shipment of a new liquid fertilizer—ammoniated superphosphoric acid—to the Pacific Cooperative in Oregon. The material, which can be mixed with other ingredients to make high-analysis complete liquid fertilizers, contains 11% nitrogen, 33% phosphate (this compares with a commonly marketed material of 8% nitrogen, 24% phosphate). TVA reportedly plans to produce 3,000 tons of the new product this year for use in research and educational programs.

SELECTED PRICE CHANGES — WEEK ENDING MARCH 30, 1959

	Change	New Price
UP		
Mercury metal, 76-lbs. flask	$3.00	$227.00
Palm oil, clarif., dms.	0.0025	0.1510
Peanut oil, crude, tanks	0.0025	0.125
DOWN		
Copra, Atl., Gulf ports, c.i.f., ton	$7.50	$260.00
Platinum metal, oz.	2.00	75.00
Tallow, inedible, fancy, bleachable, tanks	0.00125	0.07375

All prices per pound unless quantity is quoted.

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Substituting Isobutyl Acetate for MIBK means a saving of 5¢ per gallon ($400 per tank car) and helps you obtain better blush resistance.

Eliminates solvent blends

Using Isobutyl Acetate alone, the cost per gallon will in all likelihood be less than that of any usable combination of butyl acetate with sec-butyl acetate or propyl acetate. In addition, you free a storage tank for other purposes.

Your Eastman representative will be glad to show you how you can reduce your solvent costs with Isobutyl Acetate. Write to our nearest sales office or to EASTMAN CHEMICAL PRODUCTS, INC., Chemicals Division, KINGSPORT, TENNESSEE.

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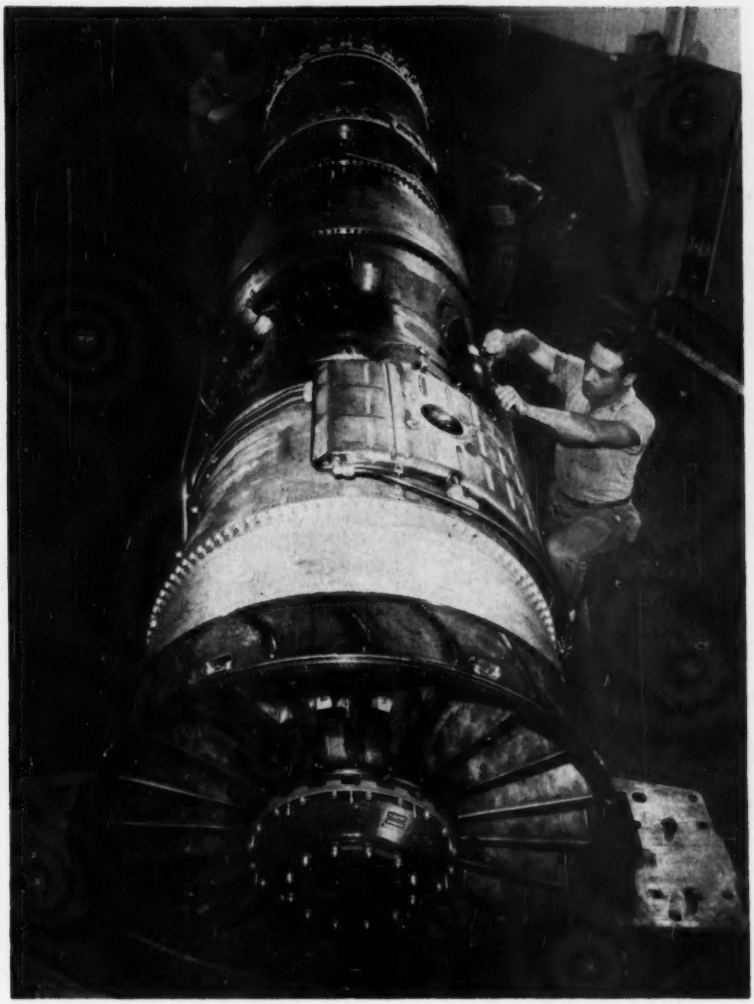
Your step ahead in particle board will be easier and surer with the *right* Borden adhesive. But choosing an adhesive can be tricky . . . and costly. The wood species used, chip shape, moisture, processing equipment, cure cycle, density, and the characteristics you want in particle board must all be considered.

Leading producers rely on Borden—a pioneer in particle board adhesives—to recommend and supply just the right adhesive for fast-stepping, and profitable, production in their plants.

When *you* step up particle board production, specify Borden adhesives. You get Borden production experience, the know-how of Borden wood technologists, chemists, and engineers. And, Borden's complete laboratory testing facilities are always at your service. Make the step ahead with Borden now by writing The Borden Chemical Company, 350 Madison Avenue, New York 17, N. Y.

IF IT'S A *Borden* Chemical IT'S GOT TO BE GOOD

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Newer versions of this jet engine need oils that take 400 F plus.

Thrust for New Jet Lubes

This week, two synthetics are jockeying for first place in the race to lubricate future jet engines. Both have demonstrated an ability to meet the requirements of Air Force target specification MIL-L-9236 A (CW, Dec. 20, '58, p. 35). Now, more severe tests are under way to see if these strict proposed requirements can be exceeded.

The contenders are a neopentyl glycol ester fortified with an antioxidant, recently developed by Heyden Newport (*CW Technology Newsletter, March 28*), and a trimethylol propane ester formulated with phenosilazine and an undisclosed additive. Celanese is turning out the latter formulation at its Point Pleasant, W. Va., plant (*CW Technology Newsletter, Feb. 21*), says it is selling it to both the Air Force and industry (e.g., Pratt & Whitney, General Electric) for experimental purposes.

Scene of the Air Force testing is the Wright Air Development Center (Dayton, O.) Propulsion Laboratory, where both lubes have passed 400 F bulk-oil jet engine tests. While the Celanese lube withstood 69 hours of 400 F testing and the Heyden Newport product has had only 50 hours testing at 400 F (tests were stopped —for different reasons—before either lube was near breakdown), both are felt to be satisfactory at this temperature, according to a Propulsion Laboratory spokesman. Now, the neopentyl glycol lube will be tested at 425 F for 100 hours. This test of the Celanese lube has just been successfully completed, and a 450 F engine run is now going on.

Celanese thinks its entry's record will be tough to match. At 425 F, the "overboard" oil (oil that would ordinarily be lost) was returned to the engine during the 100-hour run—compounding wear on the lube. Only 25 gal. of lube were consumed; lubes now used are consumed at a 1-gal./-hour rate. This means extra hours of safe lubrication of planes with limited oil capacity. (Jet aircraft can refuel but can't replenish oil in midair.)

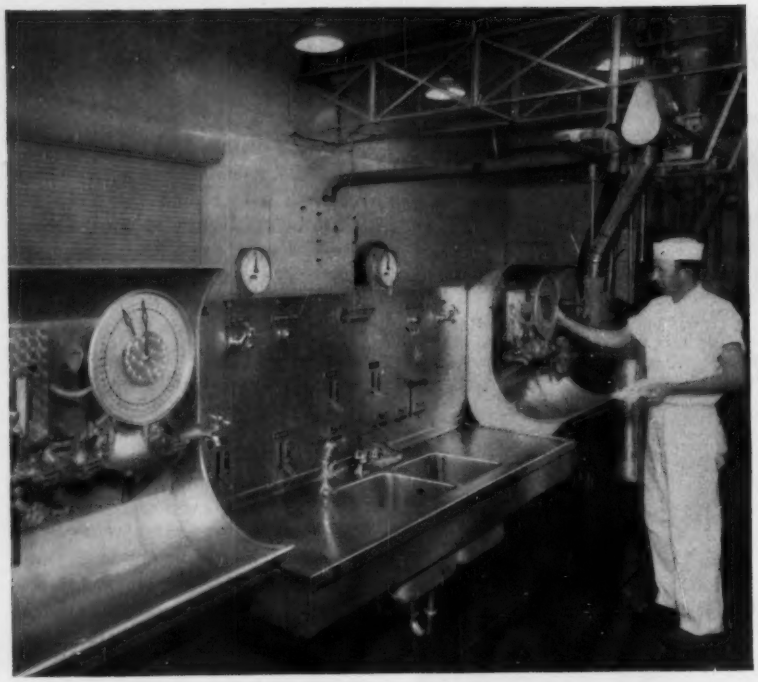
First objective of both companies is to have their lubes figure in the preparation of the joint Air Force-Navy Qualified Product List MIL-L-9236 B, expected to be ready this spring. This specification will supersede MIL-L-9236 A and will probably be stiffer in its requirements.

Oils meeting this specification will occupy an important place in aviation materials. They are intended for use in the General Electric J-93 jet engine, which will power the Mach 3 Class F-108 and B-70 aircraft now under development. Also, they may find use in other advanced engines.

Beyond this, there are other opportunities (*for synthetic lubes' market picture, see p. 69*). In industry, oils of this type will probably find use where high stability, low volatility and good lubricity are required (e.g., possibly in steel fabrication).

Meanwhile, both Celanese and Heyden Newport are working on chemical variations of their test lubes. Celanese tells *CW* it has six esters, all featuring thermal stability, that are being readied for a range of uses. Heyden Newport also reports new lubes under development and believes it may have the edge from the standpoint of raw-material economics.

Odds are that both firms will figure prominently in the future of the new oils, which only recently were considered a major problem for future aircraft.



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RESEARCH

New Octane Booster

This week, The Texas Co. (New York) is looking for licensees for a new type of gasoline additive. The new compound's novel mode of action: it increases the antiknock effectiveness of tetrethyl lead. Texaco screened more than 700 compounds to find the newcomer—chemically, tertiary-butyl acetate—which it calls TLA (code for Texaco Lead Appreciator).

TLA — still not a commercial product — increases in effectiveness as the octane of the leaded gasoline rises, so it is primarily useful in premium gasolines. For example, with 100-octane leaded gas, 0.75 vol.% TLA increases the octane by about one number. At this same TLA-to-TEL ratio, the octane rating of 106-octane leaded gas jumps two to two and one-half points.

Economics of using the additive vary from one refinery to another. Frederick Holmes, Texaco vice-president, research and technical department, says many companies and refineries may currently use the additive "effectively and economically," although Texaco itself will not use it now. Reason: companies most likely to give TLA a close look are those facing an investment in new process equipment to raise octane. Texaco is already equipped to make the highest octanes (101—102) currently being marketed. In the long run, however, the market for TLA will depend on the interest shown by gasoline companies, which in turn will be governed largely by the octane requirements of future cars.

Texaco road-tested TLA-fortified gasoline for nearly 1 million miles under wide variations in temperature, also market-tested 1.65 million gal. in northeast U.S. and in the South. In the latter tests, autoists were unaware that their gasoline (equivalent in octane to commercial grades) contained the additive.

Unlike Ethyl Corp.'s AK-33X—methyl cyclopentadienyl manganese carbonyl *(CW Technology Newsletter Jan. 18, '58)* — TLA contains no metal, although both are used with TEL. Cost of AK-33X is estimated at substantially less than 1¢/gal. of gasoline. However, cost data on TLA are not being divulged by Texaco, pending firmer market information.



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RESEARCH

EXPANSION

• The New York State Atomic Agency may soon have a nuclear research center at the University of Buffalo (Buffalo, N.Y.). A bill carrying a $1-million appropriation has been passed, creating the center.

• E. R. Squibb Division of Olin Mathieson Chemical Corp. (New York) has reorganized activities at the Squibb Institute for Medical Research. Endocrinology, nutrition and chemical work on antibiotics have been consolidated into a new Division of Biological Chemistry. The institute's synthetic research programs in organic medicinals and steroids now come within the scope of the Division of Organic Chemistry.

• The Wisconsin Alumni Research Foundation has acquired a research farm near Madison, Wis. Plans are to further studies in feed additive development, and crop insecticide, herbicide and fungicide trials for the feed and related agricultural chemical industries.

• Air Reduction Chemical Co. (New York) has a new, $400,000 research laboratory and engineering office building at Bound Brook, N.J. It will be used for product and process development and technical sales work on emulsion products.

• Crossett Co. (Crossett, Ark.) has completed a new paper coating pilot plant for experimentation on bleached food board and kraft paper.

LITERATURE

• "Advances in Inorganic Chemistry and Radiochemistry," a new series of books, has been inaugurated by Academic Press Inc. (New York). The series is designed to provide up-to-date surveys of the two branches of chemistry, with special emphasis on the integration of descriptive chemistry with structural, thermodynamic and kinetic studies. Volume 1 is available for $12, contains nine contributed articles.

• Selective Abstracts, Inc. (New York), is a newly formed organization supplying (twice monthly) technical abstracts in the drug, cosmetics-toiletries-pharmaceuticals, foods plastics, paints and advertising fields. Literature coverage includes foreign periodicals as well as peripheral publications in the industries served.



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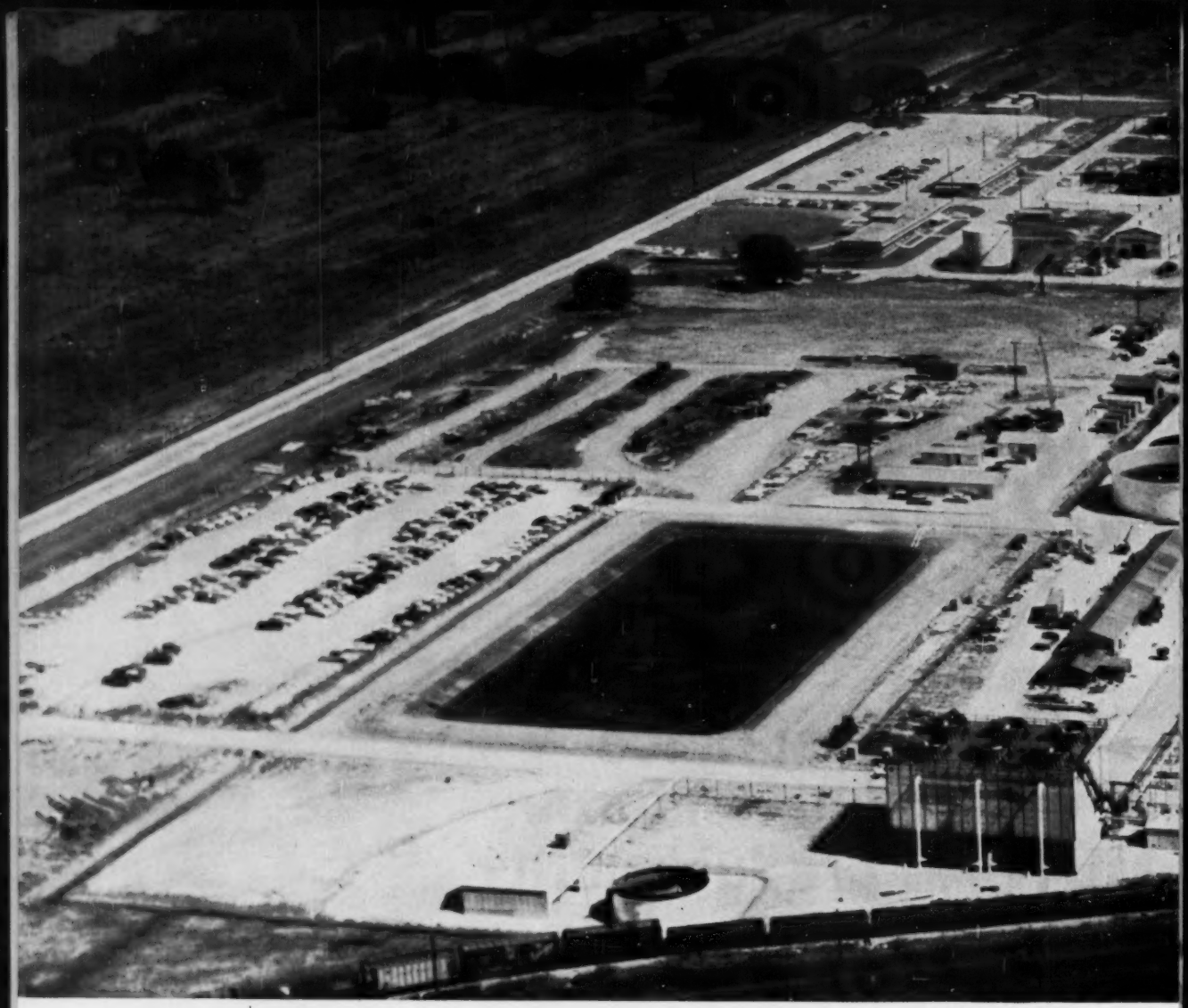
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CW PHOTOS—JIM GAGNON

Chief executive S. B. Penick, Jr., guides firm toward centralization and clearer corporate image.

Tightening Penick's Management Lines

The decentralization wave that swept over U.S. industry the past decade appears to be receding. Many firms once intent on promoting autonomy for internal operations now are moving toward tighter top-level control. Notable case in point: S. B. Penick & Co. (New York)—45-year-old, diversified chemicals maker—which last week was caught up in a strong current of management centralization.

The move is a complete turnabout for Penick, which grew and diversified through acquisitions (13 between '22 and '53). It became the world's largest dealer in botanicals (a distinction it still enjoys), today is a $20-million/year producer of fine chemicals, antibiotics, insecticides, gums, flavorings, aromatics, essential oils.

By the end of '58, Penick was a loose-knit complex of 20 operating departments, each practically autonomous, each handling its own sales and administration and each challenging every other department for research and production time and facilities.

Divisional Breakdown: Reorganization—or realignment, as Penick President S. B. Penick, Jr., labels the centralization move—puts all operating departments under three divisions: (1) Botanicals and Allied Products, (2) Farm Chemicals and Insecticides, (3) NYQ Chemical Division (formerly New York Quinine).

Management lines have been simplified. Division heads now will be able to screen their departments' needs for research and production time. As a group, moreover, division heads provide a coordinated management team capable of making top-level decisions.

With a few exceptions, top management faces remain the same. Albert Penick, younger brother of the firm's president, continues as executive vice-president and chief officer of the NYQ Chemical Division. James Flanagan continues as company vice-president and general counsel, and Robert Ridges stays on as financial vice-president.

Rule by Committee: The realignment places a great deal of faith and power in four committees—executive, merchandising, product development and research policy. Their principal job is to coordinate the day-to-day functions of the operating divisions, determine which projects should be pursued.

A product-development committee is new to Penick's operation. Headed by Product Development Vice-President Giles St. Clair, the committee determines which projects are to be recommended to the research policy committee for further study or scheduling within the research and development facilities. The committee is composed of representatives of the three divisions, director of research, production vice-president, sales coordinator and occasionally the engineering director.

St. Clair, who outlined the prob-

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Flanagan (left) and Ridges are on top-level executive committee.

lems he expects, pointed out that most Penick projects take from three to five years to develop from a workable production process to a commercial product: "There'll be problems and pressures on me from the division heads, each promoting his division's projects. That's why I want the committee between them and me."

Coordinated Sales Policy: William Thawley, who prior to realignment was NYQ sales manager, will coordinate all of Penick's domestic sales efforts, make certain that promising products get sales force emphasis, particularly with regard to outside sales representatives. Foreign sales are directed from New York through branch offices in London and Paris.

According to the firm's president, the nature of the business requires that products and customers be developed concurrently under close direction and supervision from the home office. In the past, with the exception of NYQ, each department handled its own sales, fought for a share of the outside sales representative's time.

The realignment earlier this year was timed to coincide with the firm's move into new, more spacious quarters in lower Manhattan. With the confusion of relocation and the problems inherent in changing management techniques, it's difficult as yet to evaluate the results of centralization. Penick executives agree that evaluation will have to wait another six months.

But company officers feel confident of success, point out that staff morale is noticeably higher. The primary reason for realignment, according to S. B. Penick, was to help industry get a clearer understanding of the company's operations. Observers feel that the move has a good chance of doing at least that; they point out that it may do more, that a clearer understanding is also likely to result in a more favorable attitude toward Penick on the part of other companies' executives and institutional investors. Such an attitude would be a significant asset in the face of merger negotiations or a proposed public stock offering. On this speculation, Penick comments, "Naturally we're interested in such things, but we have no merger plans or stock offering in mind. We're constantly working on various aspects; we believe in growth by outside acquisition."

High-Court Poser

Observers were still divided last week on the significance of the U. S. Supreme Court's recent decision in the Spevack heavy water-deuterium process suit (*CW Business Newsletter, March 28*). On the one hand was Jerome Spevack, claiming victory in his two-year attempt to block the Atomic Energy Commission's public disclosure of his process. Disagreeing were cautious Washington chemical processing experts.

The high court plainly did two things: (1) left in effect for possibly another four months a temporary in-

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junction blocking AEC disclosure of the process information; (2) vacated —wiped from the record—lower-court decisions in the case.

Spevack Sees Victory: Spevack, New Rochelle, N.Y., nuclear scientist, told *CW* last week that he viewed the decision as a "complete victory." He felt that the court "went as far as it could" in favor of his claims. Spevack said that by extending the temporary injunction until he could get a patent on his process (which will be within several months after he pays his final fee, due May 25), he court agreed, in effect, that AEC had no right to first publication of details of his invention, which it had classified and used since '50.

He also said that by vacating the lower-court decisions, the court set a valuable precedent: that declassification does not prevent an inventor from seeking to protect the secrecy of his invention.

Disagree: Expert Washington opinion, however, disagrees with Spevack. They say the decision did not truly decide any of the issues in the case, left nothing on the record as a precedent. Spevack's claims before the court (*CW, March 14, p. 26*) were not mentioned in the brief decision, they point out.

Industry observers, who had hoped for a decision that would clearly define the relationships between private inventors and scientists and the government, said that more time was needed to examine the decision. Some said, however, that the whole question might still rest where it was two years ago.

KEY CHANGES

John H. McKenzie to vice-president for research and development, **A. G. Treadgold** to vice-president — manufacturing, **H. B Lawson** to vice-president—finance, **Frank Lindeman, Jr.,** to vice-president—gas and oil; United Carbon Co. (Charleston, W.Va.).

W. W. Layne to vice-president, California Spray-Chemical Corp. (Richmond, Calif.).

Charles T. Harding and **Douglas W. Laird** to vice-presidents, Virginia-Carolina Chemical Corp. (Richmond).

Joseph R. Stevens to president, J. T. Baker Chemical Co. (Phillipsburg, N.J.), subsidiary of Vick Chemical Co.

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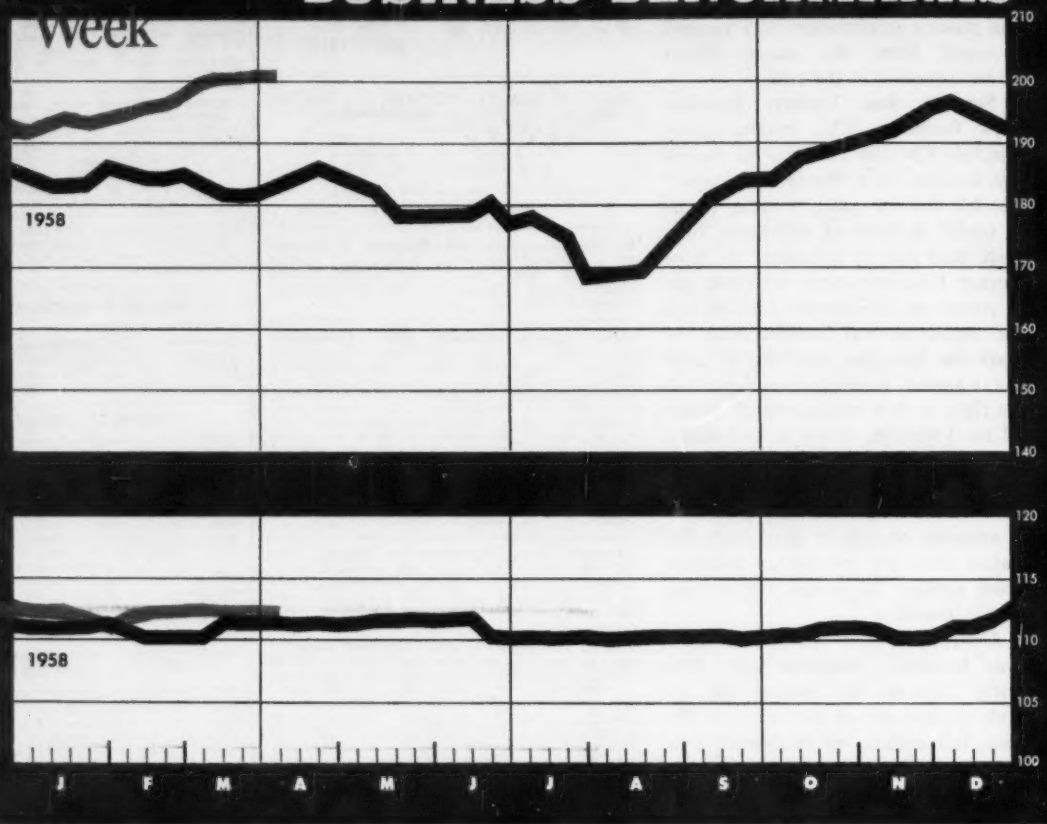
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BUSINESS BENCHMARKS



APRIL 4, 1959

WEEKLY BUSINESS INDICATORS	Latest Week	Preceding Week	Year Ago
Chemical Week output index (1947-1949=100)	202.4	201.6	185.5
Chemical Week wholesale price index (1947=100)	112.1	112.1	111.0
Stock price index (11 firms, Standard & Poor's)	53.02	53.55	39.41
Steel ingot output (thousand tons)	2,627	2,631	1,366
Electric power (million kilowatt-hours)	12,900	12,996	11,756
Crude oil and condensate (daily av., thousand bbls.)	7,203	7,155	6,263

MONTHLY INDICATORS — Trade

	Manufacturers' Sales			Manufacturers' Inventories		
	Latest Month	Preceding Month	Year Ago	Latest Month	Preceding Month	Year Ago
All manufacturing	28,214	28,135	26,350	49,493	49,209	52,911
Chemicals and allied products	1,911	2,004	1,836	3,785	3,748	3,824
Petroleum and coal products	2,991	2,970	2,774	3,244	3,264	3,615
Textile products	1,104	1,079	989	2,459	2,469	2,694





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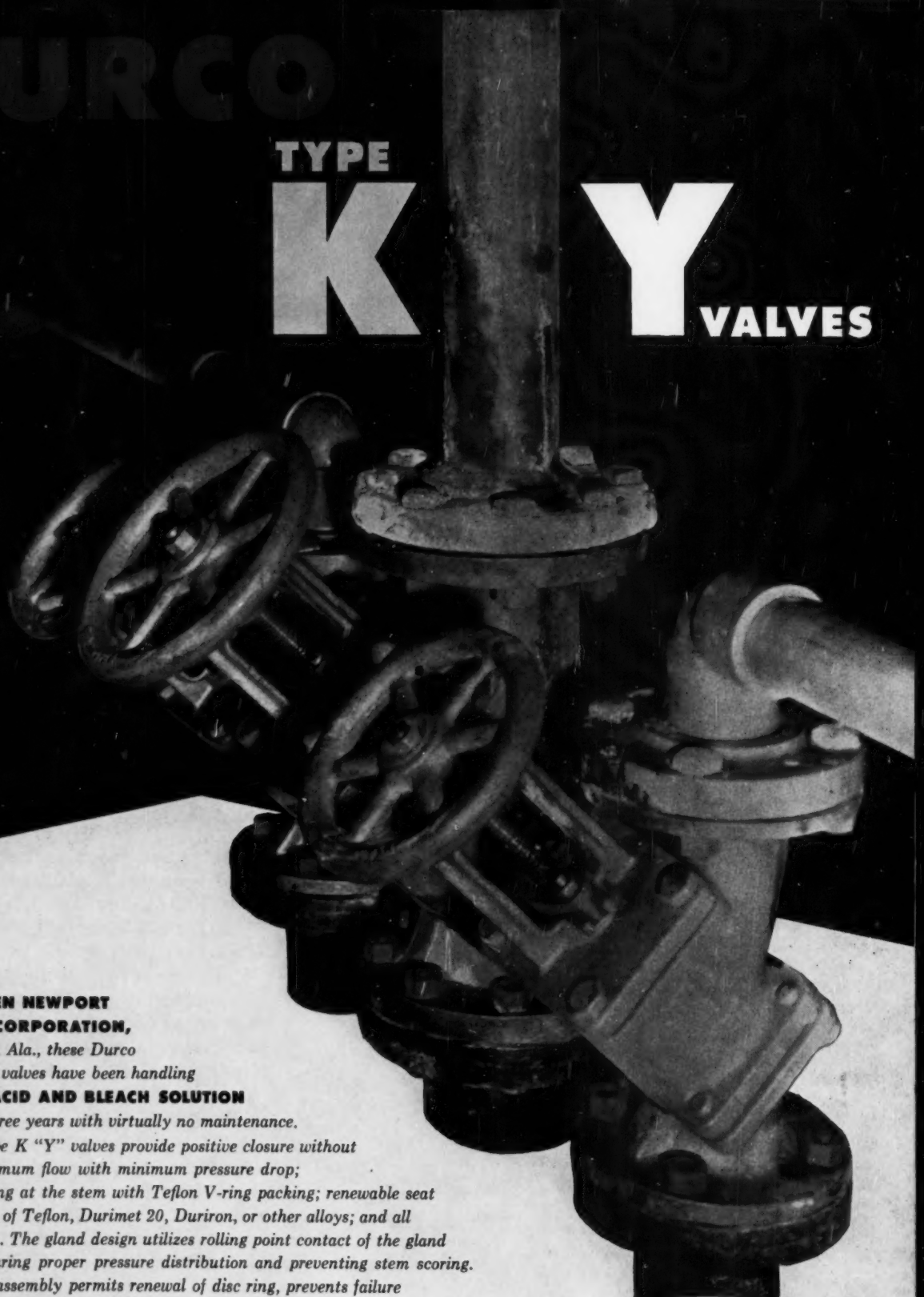
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